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DES MOINES NURSERY COMPANY

DES MOINES, IOWA

U. S. Department of Agriculture

1915



ILLUSTRATED DESCRIPTIVE CATALOG
of FRUIT AND ORNAMENTAL
TREES, SHRUBS AND VINES,
PERENNIAL PLANTS AND ROSES.

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View of Des Moines Nursery Company Plant, showing Plant of 700,000 Trees.

Illustrated Descriptive Catalogue
of
Fruits and Ornamental
Trees, Shrubs and Vines
Perennial Plants, Roses ✓



ESTABLISHED 1868

CAPITAL STOCK \$50,000.00

INCORPORATED 1884

Des Moines Nursery Company
Des Moines, Iowa

Introductory

To Our Numerous Patrons and Friends:

In dealing with our customers for practically half a century, we have constantly endeavored to conduct our business upon the high, broad plane of square dealing and upright business methods. We do not feel that the transaction with our patrons terminates upon the delivery of the goods and the collection of the bill as per contract. It is our desire to continue to render them every possible service in the proper method of transplanting, pruning, spraying and care of the stock purchased, in order that they may realize the greatest possible returns from their investment.

In view of this fact, we have adopted the slogan, "The Stock with Service Behind It," and we shall be pleased to offer you, without expense or obligation, the benefit of our experience, and such information and advice as we may be able to extend to you at any time you desire. We have endeavored in this catalogue to briefly give you information along the most important lines, but upon your request shall be glad to furnish you an Instruction Booklet of thirty pages, giving more detailed information as to the proper care of all kinds of growing trees, shrubs or plants. We invite you to take advantage of our service bureau.

We have pursued the principle of furnishing the very best stock possible, at reasonable prices, making every item sent out a living advertisement of upright methods, and by this policy have had the pleasure of a continued expansion of our business.

For all this splendid patronage we are profoundly thankful, and have prepared ourselves better than ever to carefully serve the increased patronage which we hope to receive in the future.

The careful descriptions given herein are of far more value in making successful selections than the gaudiest set of pictures would be. Therefore, study the descriptions and preserve this catalogue, for it will be found a most valuable horticultural work of reference.

Shipping.—There are sixteen railroads, five interurban lines, and three express companies in Des Moines, so that quick shipments can be made to any town in the United States. It is well to remember that express charges are usually much higher on heavy goods, and you should order them sent by fast freight.

Purchasers are requested to name the mode of conveyance by which they desire shipments; otherwise we will dispatch to the best of our judgment.

All packages delivered free of cartage at the freight and express offices in Des Moines, Iowa.

Parties desiring stock shipped per express C. O. D. must accompany their orders with cash to one-half the amount, or make satisfactory arrangements for payment of their bill.

Orders should always be placed early before assortments are broken. It is often impossible to furnish varieties wanted if orders are delayed until time for planting.

Our Facilities.—We have large and well equipped packing houses, which give us unsurpassed facilities for promptly filling our orders; protection of the stock after being dug, and packing the same without exposure to sun and wind. We paper-line all boxes, thereby properly protecting the stock in transit.

Warranty—While we exercise the greatest care to have all our trees and plants genuine and reliable, and hold ourselves prepared to replace, on proper proof, all that may prove untrue to name, we do not give any warranty, expressed or implied, and in case of error on our part it is mutually agreed between the purchaser and ourselves that we shall not, at any time, be held responsible for a greater amount than the original price of the trees.

Claims.—All claims for errors and deficiencies must be made within ten days after the receipt of the stock. We desire to be notified of mistakes as early as possible, so we may rectify the same without delay.

Inspection.—For the protection of our customers, the nurseries are inspected annually in accordance with the state laws, and a certificate issued, showing that our stock and premises are entirely free from obnoxious pests and diseases.

Our Stock is first-class and will be packed in the best manner.

Our Prices are as low as we can afford for first-class stock.

We Aim to have every deal a satisfactory one. We regard a satisfied customer as a valuable asset.

We are now in a position to promptly fill orders for goods mentioned in the catalogue, and hope to have the pleasure of supplying your wants.

Very truly yours,

DES MOINES NURSERY COMPANY.

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Suggestions to Planters

Success depends in a large measure on the treatment given stock after it is received by planters. Avoid all unnecessary exposure to the air. As soon as received it should be heeled in, so that mellow earth will come in contact with the roots. Before planting out trees see that the following suggestions are observed:

Prepare Soil.—Where possible, prepare by sub-soiling and deep plowing. Trees planted in sod will not do well. In a case, however, where only a few trees are planted in the lawn and all sod cannot be removed, be sure that it is removed from a space not less than 4 feet square for each tree. Spade this entire space very deep. Open large, deep holes. Have plenty of soft, black soil in bottom of hole. Do not use manure in the hole.

Prune Before Planting.—Cut off all bruised ends of roots, making a clean sloping cut on under side. This will permit the cut to callous over and start new fibrous roots at once. This is very important; do not neglect it. Remove all unnecessary limbs and cut off at least two-thirds of each remaining branch. Do not expect your trees to live or do well unless this is properly attended to. Apple and plum should be pruned severely, cutting back almost to body of tree. An open head top is necessary. Pears should be pruned to a pyramid. Peach are best pruned when all limbs and tops are removed by cutting off everything clean to within 36 inches of the ground. Peach must have open tops in order to successfully bear fancy fruit. By this form of pruning you will be able to properly form the top of the tree and at the same time have it close to the ground, putting most of the fruit within reach without ladders. Cherry need only moderate pruning. Shade and most of the ornamental trees not only need pruning to thin the top, but to shape it as well. In all cases be sure to prune with a definite object in view, keeping the future shape of the tree in mind, and build to it.

Plant Carefully.—Before starting to plant, be sure all directions in the two foregoing paragraphs have been carefully followed. Set all

trees 2 or 3 inches deeper than when in nursery. (The ground level in the nursery is shown on the tree by a change in the color of the bark.) Lean trees slightly to the southwest. Place the roots in their natural position and pack rich top soil with the hands around them, thus avoiding any air pockets. Before completely filling the hole, pour in a bucket of water; this will settle the soil around the roots. Then fill the hole to the top and press the earth around the tree with the foot. Follow this plan for your currants, gooseberries, grapes and blackberries as well as fruit trees.

Evergreen roots should never be exposed, not even for a moment. A very slight exposure to the sun or wind will cause the resin to crystallize and completely strangle the root. No amount of soaking afterward will undo the damage done. All evergreens 2 feet or larger should be staked to prevent movement in the wind, which would leave air pockets around the roots.

Cultivate.—All weeds and grasses should be killed out around all kinds of nursery stock. Clean cultivation is essential for the best results. A crop of weeds will use up more water from the earth than your tree needs and, in case of drought, will be the cause of the death of the stock. Don't wait until the weeds have grown before they are pulled up. Keep the soil clean at all times and save the moisture.

Mulch.—This is one of the most essential duties of the planter and is the one most generally neglected. As soon as the hot weather sets in, cover the soil around the nursery stock with straw or any old litter to a depth of not less than four to six inches and then thoroughly wet down. In the case of trees, a space at least 4 feet square should be covered and a corresponding amount for smaller stock. This will keep down the weeds and protect the soil from the direct rays of the sun and will thus prevent the stored-up moisture from being taken up except through the leaves of stock. Let no other work prevent proper mulching.

Spray.—Complete instructions on this important subject will be found on pages 58 to 62.

TABLE SHOWING NUMBER OF TREES OR PLANTS TO THE ACRE

Distance	No. of Trees
1 foot apart each way.....	43,560
2 feet apart each way.....	10,890
3 feet apart each way.....	4,840
4 feet apart each way.....	2,702
5 feet apart each way.....	1,742
6 feet apart each way.....	1,210
7 feet apart each way.....	888
8 feet apart each way.....	680
9 feet apart each way.....	537
10 feet apart each way.....	434
11 feet apart each way.....	360
12 feet apart each way.....	302

RULE.—Multiply the distance in feet between the rows by the distance the plants are apart in the rows, and the product will be the number of square feet for each plant or hill, which, divided into the number of feet in an acre (43,560), will give the number of plants or trees to the acre.

SUITABLE DISTANCES FOR PLANTING

Apples	25 to 35 feet
Pears, Standard	18 to 20 feet
Pears, Dwarf	10 feet
Peaches	16 to 18 feet
Apricots	16 to 18 feet
Cherries, Sweet	18 to 20 feet
Cherries, Sour	15 to 18 feet
Plums	16 to 20 feet
Quinces	10 to 12 feet
Grapes	8 to 10 feet

Currants	3 to 4 feet
Gooseberries	3 to 4 feet
Raspberries, Red	3 to 4 feet
Raspberries, Black	4 to 5 feet
Blackberries	5 to 7 feet
Strawberries, rows	by 3½ feet
Strawberries, in beds.....	1½ by 1½ feet
Asparagus, in beds.....	1 by ½ feet
Asparagus, in field.....	1 by 3 feet



Yellow Transparent.

Apples

Taking into consideration its hardiness, productiveness, and general commercial value, the apple stands at the head of our list of fruits.

Unlike that of other fruits, its period of ripening extends nearly or quite through the year, and by making a judicious selection of summer, autumn and winter sorts, a constant succession may be obtained of this indispensable fruit for family use.

For the convenience of the planter we have divided the list of varieties into sections according to the ripening season. This division of varieties is intended for this latitude, consequently those residing further north or south should make due allowance for their respective locations.

In selecting the most important varieties for propagation it is our constant aim to secure only those of standard excellence, and in no case to recommend a novelty without first having ascertained its history from a reliable source.

There is no farm crop on the average which will produce one-fourth as much income per acre as will a good apple orchard properly cared for. The average price paid for the fruit is steadily on the increase, and the immense demand for fancy apples for home consumption as well as the distant markets, assures one of a continued increase.

Summer Apples

Benoni—Medium size, round in shape; pale yellow, shaded with crimson; tender, juicy and sub-acid. Tree is of vigorous, upright, spreading habit.

Duchess of Oldenburg—A beautiful round apple. Streaked red and yellow. Tender, juicy and pleasant. Tree a vigorous grower, early and abundant bearer; fruit very attractive in appearance. Very hardy.

Early Harvest—Tree healthy, vigorous and a good bearer. Fruit medium size, somewhat flattened in shape; skin smooth and a clear, waxy yellow, rarely blushed; flesh tender, juicy, acid to sub-acid; flavor good.

Red Astrachan—Tree an upright grower; vigorous, hardy and productive. Fruit medium to large; surface smooth, mottled and striped on greenish-yellow; flavor acid. Valued as an early market and dessert apple.

Red June—Medium size; skin red; flesh white, tender, juicy, subacid; an abundant bearer. Tree an upright grower.

Sweet June—Tree is strong, upright, very productive. Fruit small to medium, round in shape; greenish-yellow color; flesh white, fine grained and tender.

Yellow Transparent—A Russian apple. The tree is a hardy, upright grower, a regular and early bearer; medium size. Color a rich, transparent yellow, with a warm, faint flush on the sunny side; flesh is melting, juicy, sub-acid.

Fall Apples

Fameuse (Snow)—Medium size, roundish, slightly ovate; whitish ground, striped deep red; flesh very white, juicy, pleasant. Valuable northern sort.

Maiden Blush—Large, flat, regular, smooth; evenly shaded, with a red cheek or blush on a pale yellowish ground; flesh white and tender, with a pleasant sub-acid flavor; tree erect, vigorous and a regular and abundant bearer.

Rambo—Medium size, oblate, skin smooth, yellowish white in the shade; streaked and marbled pale yellow and red in the sun, and speckled with large rough dots; very tender, rich, juicy, mild, sub-acid. Tree vigorous grower, but tender in some localities.

Ramsdell—Medium red color, excellent flavor, and the best autumn sweet. Tree vigorous, upright, productive, hardy.

Snow—(See *Fameuse*).

Wealthy—Medium size; round in shape; skin smooth, oily, light yellow, almost entirely covered with dark red; flesh white, fine, juicy and sub-acid; one of the best and finest apples grown. Tree vigorous, extremely hardy; one of the iron clad; a very early and abundant bearer.

Wolf River—A very large variety, splashed and streaked with red; flesh white and coarse, juicy, mild subacid, with a peculiar spicy, quince-like flavor. Invaluable for cooking, and a profitable market fruit.



Duchess of Oldenburg.

Winter Apples

Arkansas Black—Vigorous, upright grower. Fruit medium to large; beautiful dark color, almost black; the flesh is yellowish, slightly sub-acid, crisp and of fine flavor. One of the best apples for cooking purposes. January to March.

Banana—Fruit large, perfect in form, golden yellow, beautifully shaded and marbled with bright crimson; flesh lemon-yellow; fine grained and of the highest quality. Rich, aromatic, subacid flavor. A good keeper. Remarkably strong grower. Its young bearing is something wonderful, generally producing a fine crop of fruit the second year. Valuable market variety, but must be handled carefully on account of its tender skin. November to May.

Ben Davis—Tree thrifty, upright grower of almost perfect shape. Fruit large and round, sometimes variable in form; surface smooth, often polished yellow, covered and splashed bright red; flesh white, tender, and juicy; flavor is sub-acid, not rich; quality only good; best for market and cooking. November to Spring.

Black Annette—Medium size, very dark red; mild subacid; spicy and good. This has proved one of the hardest and best winter apples. February.

Black Ben Davis (See Gano).

Delicious—Large, with surface almost covered with a most brilliant, beautiful dark red, blending to golden yellow at the blossom end. In quality it is unsurpassed. In flavor, it is sweet, slightly touched with acid, but only enough to make it all the more pleasing, with an aroma delightfully fragrant. Flesh fine grained, crisp, juicy, melting, and withal delicious. In keeping qualities it ranks with the best, coming out of storage in March and April in perfect condition. It is one of the strongest, hardest, and most vigorous growers. Rapidly taking first rank both for commercial and home orchards.

Wealthy.





Banana.

WINTER APPLES—Continued.

Gano (Black Ben Davis)—Fruit is bright red on yellow ground, with no stripes; large and oblong in shape, surface smooth and polished; dots minute; basin shallow, sometimes deep; eye large, cavity deep; brown in color; stem medium to long. Tree healthy, vigorous and prolific bearer. January to April.

Grimes—This is one of the most popular apples in cultivation. Tree strong, thrifty grower. Fruit medium to large, cylindrical in shape; regular surface, yellow veined, russeted; flesh yellow, firm, very fine grained, juicy; flavor subacid; quality rich. For dessert, cooking and market. November and December.

Huntsman—Fruit large, flat, deep yellow; very mild, subacid, fine grained. Valuable for family and market. Tree fair grower and good bearer, but does not bear heavily while young. October to April.

Ingram—Seedling of the Rall's. A very late keeping apple. Fruit is medium size, conical shape; red and striped; good quality. Tree healthy and bears young and abundantly. A coming commercial variety. December to spring.

Iowa Blush—Small to medium size; quality only fair; tart flavor. Tree extremely vigorous and hardy. November to February.

Jonathan—Tree of rather slender growth and spreading habit; fruit medium or above in size, round or oblong; surface very smooth, waxy yellow, often wholly covered with brilliant red; flesh whitish yellow, tender, very juicy; for dessert and cooking; quality best. October and November.

Mammoth Black Twig—One of the most valuable and profitable apples grown. Resembles in every way the Winesap, of which it is no doubt a sport, except that it is one-third to one-half larger. The trees are also the same in habit of growth, color of bark and foliage, but the Black Twig is the stronger grower. Makes handsome tree in nursery and orchard.

Missouri (Missouri Pippin)—Large, oblong, bright red apple, with numerous gray dots; very handsome and of fair quality; an early and very abundant bearer and a very profitable orchard fruit; vigorous tree. December to March.

Northwestern (Northwestern Greening)—Fruit medium to large, averaging seven to eight ounces each and very uniform in size. Color greenish yellow; flesh juicy, firm and fine grained. Very fine quality and flavor. Tree is very hardy and a thrifty grower, an early and continuous bearer. One of the longest keepers known. January to spring.



Grimes.



Stayman.

Rall (Rawl's Janet)—Tree good grower, but only medium size; fruit medium size, somewhat conical; surface smooth, striped with red on yellow and green body; flesh yellowish, crisp, fine grained and juicy; flavor sub-acid; quality good. For dessert, kitchen, market and cider. November to spring.

Roman Stem—Tree moderate grower and productive; fruit medium, surface smooth, yellow, sometimes blushed; flesh light yellow, fine grained and juicy; flavor mild subacid; quality very good; for table use. October to December.

Rome Beauty—A large, smooth apple of uniform size, bright red in color. Tender, juicy and of splendid quality. A good cooker and is especially fine for baking. Will keep until spring in cold storage or in common cellars, and stands handling well. The apples set singly and evenly all over the tree, there being no clusters or bunches. The fruit hangs to the tree remarkably well even in high winds. Not until the last ten years has this sort been planted as it deserves. Now, however, Rome Beauty is becoming more popular each year. November to March.

Stayman (Stayman's Winesap)—This apple was originated by the late Dr. J. Stayman, of Leavenworth, Kansas. He said fifteen years ago in referring to it: "There will come a time when all will want it." It is dark, rich red, with rather indistinct striping. This apple is not only larger than the old

Winesap, but it is even juicier. The tree is very productive, and a drouth resister which will thrive on thin soils where the Winesap would soon starve. This apple is rapidly coming into a very wide spread favor, and



Rome Beauty.

STAYMAN—Continued.

here in the middle west it is crowding out many of the old standard varieties and taking the leading place. The Stayman is an apple that is not only desirable in the home orchard, but is one of the most profitable when grown for commercial purposes.

Tolman—Medium, pale, light yellow; flesh white, fine grained; very hardy and productive. The best winter sweet apple for home and market. November to March.

Winesap—Medium, conical, dark red; very smooth. Acid to subacid, juicy and rich, very valuable for both family and market. Tree very hardy and an early and constant bearer. December to April.

York Imperial—Tree moderate grower and productive, fruit large, lop-sided; surface smooth; color mixed bright red on yellow ground; flesh yellowish, tender, juicy; flavor mild subacid; quality very good; for market, table, kitchen. November till spring.



Northwestern.



Whitney Crab.



Hyslop Crab.



A.B.M.CO.

Transcendent Crab Apples.

Crab Apples

The Crab Apple has many points of excellence. It makes a fine ornamental tree, perfectly hardy, and grows in any soil.

Within the past few years much attention has been given to improving this class of fruits, because of their adaptability to cold sections where only a few varieties of apples could be grown. Crab Apples succeed equally well in all sections, and while they are very valuable for cider, preserves and jelly, still, some of the varieties, especially the Whitney, command a good price on the market for dessert purposes. The trees are very ornamental when in bloom or loaded with their highly colored fruits. Owing to their upright nature crabs may be planted somewhat closer than apples.

Grant—Large, roundish, oblate; yellow, with stripes of deep red, and dark red, almost black on the sunny exposures; flesh white, moderately fine grained, mild, subacid flavor. September and October.

Hyslop—Tree a moderate grower, making a beautiful shaped, thrifty tree; bears young; fruit large, nearly round, slightly flattened at the ends; skin smooth, color dark rich red on yellow ground; flavor very good, but doesn't keep well, gets mealy. Its high color commands a fancy market price.

Transcendent—A large, beautiful tree, and a very strong grower; an early and abundant bearer; fruit large and round; skin smooth and of a rich yellow color, shaded with red. Flesh firm and crisp, yellowish, fine grained, very juicy, acid. August and September.

Whitney—Tree a thrifty, upright grower; fruit large, skin smooth, striped and splashed with carmine; flesh firm, juicy, of pleasant flavor. One of the very best Crab Apples. Its crab parentage is shown in the health and vigor of the tree. The fruit in size and quality is equal to many apples. August.



Elberta.

Peaches

The ease with which peach trees may be grown, their comparative freedom from disease, the short period before they become productive, with the immense demand for the fruit and facility with which it may be shipped into distant markets, makes peach growing in favorable localities extremely profitable. To secure healthy, vigorous and fruitful trees, the ground must be kept clean and mellow. Proper cultivation, yearly pruning and careful spraying are absolutely necessary to produce fancy peaches. The comparative seasons of ripening are designated by the words "early," "medium," and "late."

Alexander—White; free; early. Large size, regular in form, deep maroon shade, covered with the richest tint of crimson; rich and good in quality, with a vinous flavor; adheres slightly to stone.

Bokara—Yellow; free; medium. Raised from seed procured in Bokara, Asia. It has been fruited in Iowa a number of years and found to be one of the hardest peaches known here. Tree has stood 28 degrees below zero with but little injury to the tips, and produced fair crops. Fruit large, yellow, with red cheek, of good quality, perfectly free-stone; skin tough; a fine shipper.

Carman—White; free; early. Large, resembles Elberta in shape; color creamy white, with deep blush; skin very tough; flesh tender, fine flavor and quite juicy. One of the hardest in bud. In shipping qualities and freedom from rot it is unsurpassed. Profitable market variety.

Champion—White; free; early. The earliest freestone and a first-class shipper. Bears full crops when others

fail. In comparison with the bountiful yield of all of the best kinds, it is of all of them the champion. Size large, flavor delicious, juicy, sweet, rich, excelling all other varieties; very handsome in appearance, creamy-white with red cheek; very hardy.

Chinese Cling—White; cling; early. Fruit very large, oblong in shape; skin clear straw color, almost transparent, with delicately mottled red cheek. The flesh is exceedingly juicy, rich and refreshing. Well known and very popular variety.

Crosby—Yellow; free; late. Medium size; rich orange yellow with red blush; pit small and free; flesh yellow, juicy, sweet. Tree low, spreading; willowy habit of growth. Very hardy; bears full crops of choice fruit; a valuable variety.

Early Crawford—Yellow; free; medium. Fruit very large, oblong; skin yellow, with a fine red cheek; flesh yellow, juicy, sweet and excellent. Wonderfully productive and hardy.



Champion.



Chinese Cling.

PEACHES—Continued.

Elberta—Yellow; free; medium. Supposed to be a seedling of Chinese Cling, but is entirely free. Very large, yellow, with red cheek; flesh yellow, firm, juicy, and of high quality; exceedingly prolific; sure bearer and hardy.

Fitzgerald—Yellow; free; medium. An improved Early Crawford, being fully equal to it in size, quality and color. The tree commences bearing young, is productive and one of the hardiest. Fruit large, brilliant color, bright yellow, suffused with red; flesh deep yellow, best quality.

Foster—Yellow; free; medium. Large, deep orange red, becoming quite dark red on sunny side; flesh yellow, rich and juicy with subacid flavor; firm; one of the best for canning or drying.

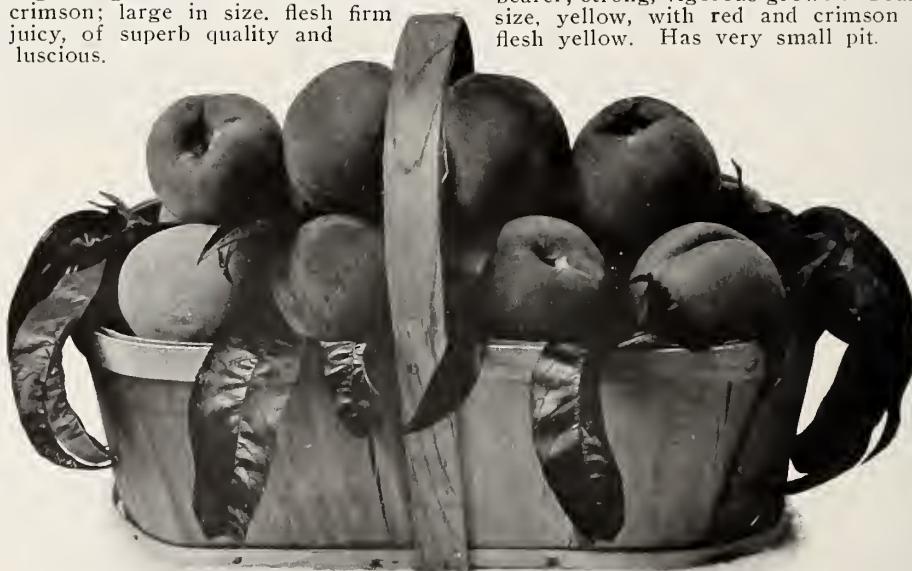
Globe—Yellow; free; late. A very rapid and prolific growing sort. Fruit shaded with reddish crimson; large in size, flesh firm and juicy, of superb quality and very luscious.

Heath Cling—White; cling; late. Very large, creamy white skin with delicate red blush; flesh white, slightly red at the pit; tender, juicy and sweet; a valuable sort for canning and one that commands fancy prices in all markets.

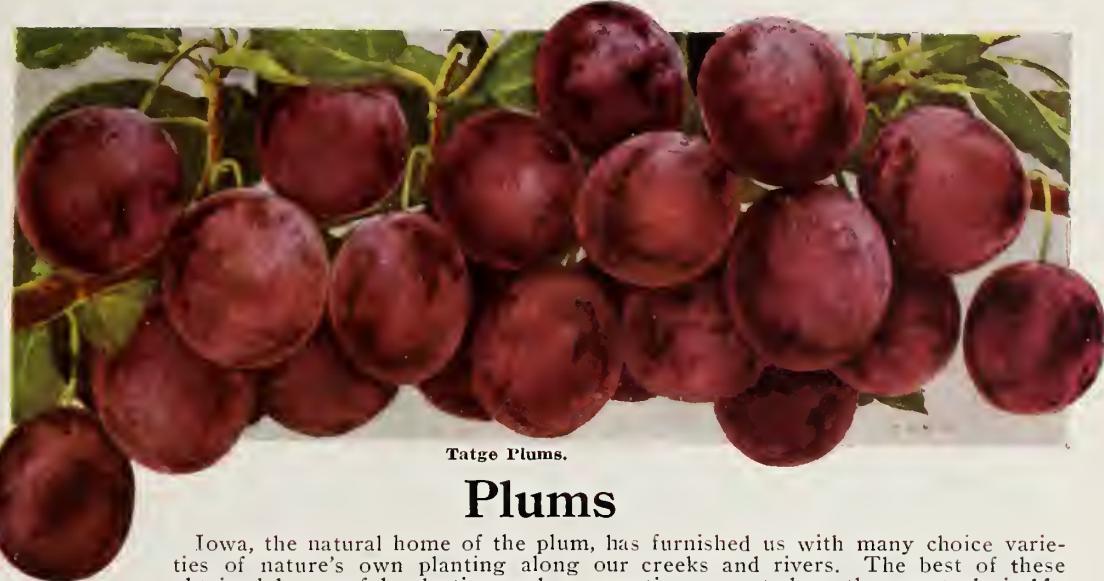
Late Crawford—Yellow; free; late. Fruit of the largest size; skin yellow or greenish yellow, with dull red cheek; flesh yellow; productive. One of the finest late sorts.

Stump—White; free; medium. Medium to large size, oval in shape, creamy white with bright red cheek and abundant bloom. Flesh white, of a delicious flavor. Tree is very sturdy and productive.

Triumph—Yellow; free; early. Earliest yellow fleshed peach, with good eating and shipping qualities. Blooms late; sure and abundant bearer; strong, vigorous grower. Fruit good size, yellow, with red and crimson cheek; flesh yellow. Has very small pit.



Early Crawford.



Tatge Plums.

Plums

Iowa, the natural home of the plum, has furnished us with many choice varieties of nature's own planting along our creeks and rivers. The best of these obtained by careful selection and propagation, are today, the most desirable varieties for planters of the prairie states. They are perfectly hardy, able to stand our climate and it is from these that we must expect our profitable crops of this fine fruit.

The plum delights in a cool, not too dry, situation, and attains its greatest perfection on a rather heavy soil. It is more desirable to plant plums in clusters rather than in rows. Many of the best sorts are not self fertile, and although blooming abundantly, they must have the company of other varieties to enable them to mature fruit. Therefore, be sure to plant several varieties together.

As no other fruit has a greater variety of uses, or is capable of satisfying as many different tastes, the value of the plum in a commercial way is unlimited. The home orchard is not complete unless it contains at least a half dozen trees.

The plum's greatest enemy, the curculio, is easily controlled by spraying, and for full directions on same see page 59.

Native Plums

De Soto—Fine for eating or canning. Tree a moderate grower; bears young and profusely; hardy throughout the north. Is best planted on moist, rich ground and the fruit thinned. Use this variety for fertilizing. Season medium.

Forest Garden—A strong growing tree; needs a little attention to keep tree in shape to avoid splitting and breaking of limbs. A profuse bearer and perfectly hardy; nearly round, mottled red and yellow; rich and sweet. Season medium.

Hammer—Large, oblong, light red, of fine quality; profusely fruitful; fine for canning or market. Season late.

Hawkeye—Large, color light mottled red; plum of superior quality. Firm, carries well to market. Tree hardy and thrifty; annual bearer. A splendid fertilizer. Season late.

Milton—Medium size, dark red color, skin thin, flesh firm, quality fair. A strong grower, productive. Season early.

Miner—Tree a strong, vigorous grower; fruit large and of good quality. A valuable variety to raise in the south part of the state. Season late.

Pottawattamie—Tree a good grower and hardy; color a yellowish red turning to bright red when fully ripe; skin thin, clear and tough; quality fairly good. Season early.



Wyant Plums.



Burbank Plums.

NATIVE PLUMS—Continued.

Wild Goose—A very popular fruit. Tree vigorous, upright grower; fruit medium to large; rich golden yellow, shaded with red; flesh yellow and juicy; flavor rich and good. Early.

Wolf—Fruit large, a perfect freestone. Quality fine; superb for cooking and for serving raw with sugar. Tree a good grower and hardy. Season medium.

Wyant—Large, conical shaped plum, dark red color; thick skin; peels readily; flesh firm; freestone, and of excellent quality. Native of Iowa and hardy. Season medium.

European Plums

Damson—(See Shropshire).

German Prune—Very large, long, oval; purple, with a thick blue bloom; flesh green, firm, sweet and pleasant, separates freely from the stone. Tree vigorous, bears enormous crops which hang late. Season late.

Green Gage—A small, slightly oblong, yellowish-greenish sort. Deservedly esteemed for its delicious juicy flavor. Very prolific. Excellent for preserving and canning purposes. Season medium.

Lombard—Tree vigorous, hardy and productive; fruit of medium size, oval, but slightly flattened at the ends; skin a delicate violet-red, paler in shade; flesh deep yellow, juicy and pleasant. Season medium.

Pride—(Shipper's Pride). Size large; color dark purple; flesh firm and flavor excellent. Season late.

Shropshire (Damson)—A plum of fine quality. Skin a dark purple; flesh a bright yellow; size medium; juicy and sprightly. Very productive and a valuable market variety. Free-stone. Season late.

Tatge—A seedling of European strain which originated in Iowa. A fine grower and an early and profuse bearer. It has stood all the test winters of the past fifteen years, and seems to be the most productive long lived plum known. Large size; purple in color; flesh a bright yellow, firm, juicy and tender. Excellent in quality. Season medium.

Yellow Egg—Very large and beautiful egg-shaped yellow plum; a little coarse but excellent for cooking; tree a free grower and very productive. Season medium.



Lombard Plums.

Japan Plums

Abundance—Large, round, freestone plum. A rich cherry color with a whitish bloom when ripe; flesh light yellow, juicy, tender and sweet; of excellent flavor. Vigorous and very productive. Season medium.

Burbank—Large, nearly globular plum; clear cherry red with thin lilac bloom; flesh deep rich yellow, very sweet with a peculiar and agreeable flavor. Vigorous and a very early bearer. Season medium.

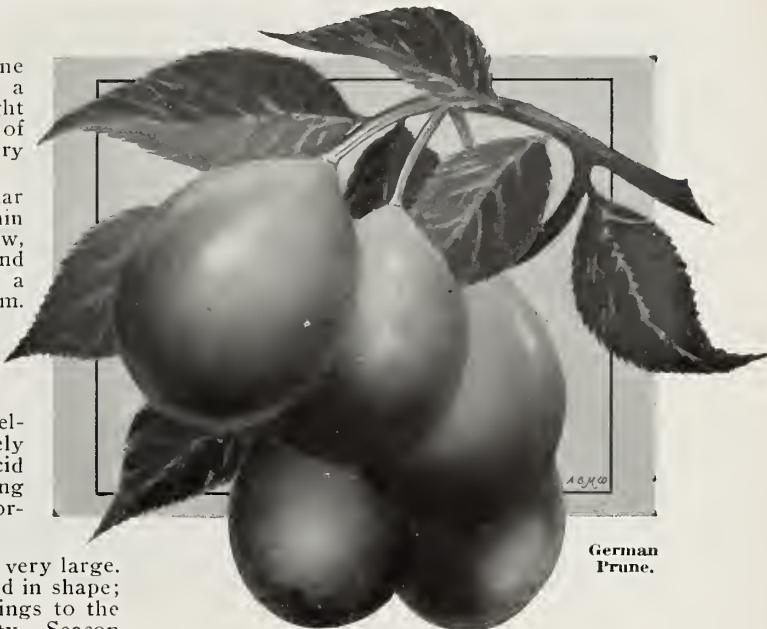
Red June—One of the vigorous, upright growers; productive; fruit of fair size; deep vermilion-red all over, with handsome bloom; very showy; flesh light lemon-yellow or whitish; firm and moderately juicy, not stringy, slightly sub-acid to sweetish; of good quality; cling to half cling; pit small. Tree vigorous. Season early.

Wickson—A remarkably handsome, very large, deep red plum. Oblong and pointed in shape; flesh firm, deep amber yellow; clings to the small pit. A very desirable variety. Season late.

Hansen's Hybrid Plums

Hanska—This is a cross between a wild north-western plum and *Prunus Simoni*. Fruit about $1\frac{1}{2}$ inches in diameter. The flat shape of this plum and its peculiar red color with its heavy blue bloom distinguishes it from all other hardy plums grown in the Northwest. Tree a very strong grower and very hardy. An early and profuse bearer; quality good.

Opata—Another of Prof. Hansen's plums, and is a cross between the Dakota Sand Cherry



German
Prune.

and a very large Hybrid Japanese Plum called the Gold Plum. Opata is a vigorous plum tree in habit, with its glossy foliage, resembling the European plum leaves, and is hardy as an oak. Bears almost invariably at two years old; the fruit is very large, measuring about $1\frac{3}{4}$ to $2\frac{1}{2}$ inches in diameter; in quality it is delicious, having the sprightliness of the Sand Cherry with the rich sweetness of the Gold Plum. Skin thin and free from acidity. Pit very small; season extremely early, just when you want plums. Color dark purplish red with blue bloom; flesh green.



Wickson Plums.



Montmorency Cherries.

Cherries

The Cherry is one of the most ornamental of our fruit trees, which, with its delicious and refreshing fruits, makes it very desirable for planting near the dwelling where beauty and shade as well as fruit is desired.

There are very few more desirable fruits than the cherry. They are being planted more and more each year in all sections of the country, and there is always a brisk demand on the market for good fruit. Aside from their fruit value they make very ornamental trees for the lawn. The fruit is delicious when eaten out of the hand or preserved. No home garden is complete without a few cherry trees.

The Morello or acid types, are thoroughly hardy, while the sweet cherries should not be planted as far north as this latitude.

The cherry thrives best on sandy soil and there it attains its highest perfection. It will do well in almost any situation except a wet one.

Sweet Cherries

A type of cherry which lacks the acid juice of the other sorts. Always a large cherry with firm flesh and a delicious flavor. A valuable market sort. Not as hardy a cherry as the other varieties. The sweet cherries are either black or yellow in color.

Black Sweet—A large, bright purplish black cherry; flesh firm, rich and juicy; excellent flavor; a good keeper and an early and profuse bearer. We furnish Windsor and Black Tartarian on this sort; both very productive in proper locality, but not hardy in the north.

Yellow Sweet—Large pale yellow cherry with bright red cheek; firm, juicy and sweet. Fine for canning. We furnish Napoleon Biggareau and Gov. Wood on this sort. Both vigorous and productive trees but not hardy north.



Compass Cherries.

Sour Cherries

Compass—Originated in Minnesota, and a very early bearer. Is a cross between the Morello cherry and Miner Plum. Remarkably hardy and planted extensively in Minnesota and the Dakotas, where encouraging reports have been made as to hardiness and fruitfulness. Its early bearing is wonderful. One year-old trees in the nursery rows are often covered with bloom. Many trees fruit same year they are planted. Unsurpassed in extremely cold climates for canning.

Dyehouse—This variety partakes both of the Morello and Duke in both wood and fruit. A very early and sure bearer; ripens a week before Early Richmond, is of better quality and productive. Free. May and June.

Montmorency—A beautiful, large, red, rich, acid cherry; much larger and firmer than Early Richmond, and a week or ten days later in ripening. Being extraordinarily prolific and very hardy, it can be recommended as a variety of great value. Valuable for canning and preserving. The Montmorency cherry is in great favor wherever cherries are grown. The tree is a strong, upright grower. There is always a heavy demand for this variety.

Morello—Tree moderate grower, hardy; an early and great bearer; the most valuable of the late varieties. Fruit large and round; skin dark red, becoming nearly black when fully ripe; flesh dark red, tender, juicy and of a pleasant subacid flavor when fully ripe.



Morello Cherries.

Ostheim—A hardy variety imported from Russia. Fruit large and dark red; flesh light red, tender and juicy; rich, pleasant flavor. Tree a moderate grower.

Richmond—Everywhere the most popular. Tree strong, thrifty grower, making a large, symmetrical head; fruit medium size, dark red and juicy; sprightly acid flavor and especially valuable for cooking purposes; tree an early and abundant bearer.

Wragg—Originated in Iowa. Medium size, with long stem; dark purple when fully ripe. Appears identical in tree and fruit with English Morello, but is claimed to be a new variety. Valuable late cherry.



Richmond Cherries.



Bartlett Pears.

Anjou—Standard. Autumn. Large; dull, yellowish green, sometimes with a dull, reddish check; flesh white, juicy, with a brisk, perfumed flavor; vigorous and hardy.

Bartlett—Standard or Dwarf. Summer. Large size, with a beautiful blush next to the sun; very juicy and highly flavored; bears early. One of the most popular pears; delicious for eating.

Clapp Favorite—Standard. Summer. Large, skin thin, pale yellow marked with a pale crimson and dots; flesh white, fine grained and juicy, rich and sweet. Very vigorous, upright grower.

Duehess—Standard or Dwarf. Autumn. Very large, dull, greenish yellow, streaked and spotted with russet; flesh white and very juicy with a rich, excellent flavor; tree vigorous.

Flemish (Flemish Beauty)—Standard or Dwarf. Autumn. Large, beautiful, juicy and melting; good bearer; one of the hardiest pears, and does well wherever pears can be grown.

Garber—Standard. Autumn. Very large and oval, narrowing at both ends; yellow as an orange; flesh white, juicy, sweet and very pleasant. Tree an upright grower with heavy dark green foliage.

Pears

The planting of the pear is rapidly extending as its value is appreciated. Like apples, the range of varieties is had in good eating condition from August until well into the winter.

The melting, juicy texture, the refined flavor and the delicate aroma of the pear give it a rank above all other fruits except the grape.

The pear, like all highly desirable and valuable fruits, cannot be had without attention and labor. The high prices which it commands on the market will repay one to give the tree the high cultivation necessary to secure the best results.

Pears prefer a strong loam, but succeed well in a great variety of soils, and upon any land that will produce a good crop of vegetables, grain, etc. Pears will keep longer and their flavor will be highly improved if picked before they are fully ripe. Summer pears should be gathered at least ten days before they are ripe, and autumn pears at least two weeks. When the trees are heavily laden, the fruit should be thinned when about one-third grown, otherwise it will be poor and the trees injured.

When pears are budded or grafted on pear roots they produce standards, and when worked on the quince root they produce dwarfs. Varieties which can be furnished in dwarf form are indicated below.



Flemish Pear.



Kieffer Pears.

Kieffer—Standard or dwarf. Autumn. Large, rich, golden-yellow, sometimes bottle-red on the sun-exposed side. Fruit very large; flesh is white, crisp, juicy and of a slight quince flavor. Highly prized for canning. It has become a profitable market variety on account of its good shipping and keeping qualities. To properly ripen, the fruit should remain on the trees until leaves begin to fall, then gather carefully and allow to ripen in a cool, dark cellar or other place of even temperature. Tree a most vigorous grower, an early bearer.

one of the most resistant to blight, very prolific, and widely planted throughout the country. The tree is so hardy and free from insect pests as to give it greater value than most other varieties. The fruit is of high color and great beauty.

Seckel—Standard. Autumn. Small in size; skin a rich, yellowish brown; flesh very fine grained, sweet, juicy and melting. Bears regular and abundant crops in clusters at ends of branches. Tree a strong grower. Considered one of the best pears. Among the healthiest and hardiest of pears; makes a beautiful tree, either standard or pyramid.

Mulberries

The mulberry is not only valuable as an ornamental shade tree, but the fruit is well worthy of a place in every collection. Plant in deep, rich sandy loam. The tree requires little or no pruning and is of easy culture.

American—Fruit large and fine quality; tree rapid growing and very hardy. It bears delicious fruit from middle of July until autumn.

Downing—This very delicious variety originated from the seed of the *Morus Multicaulis*, having the strong, vigorous habits of that species, and produces a large fruit of a dark purplish black color; flesh juicy, rich, and delicious. Very productive and ripening its fruit in succession for a long time. Not hardy north of Missouri and Kansas.

Russian—Tree very hardy and a rapid grower; specimens six years old are twenty feet high and six to eight inches in diameter; very prolific, commencing to fruit when three years old. The berries are good for dessert and fine for jellies.

Teas' Weeping Mulberry—Forms a perfect umbrella shaped head, with long, slender branches drooping to the ground, parallel to the stem; very hardy; one of the prettiest small weeping trees.



Downing Mulberry.



Moorpark Apricot.

Apricots

The Apricot, one of the most beautiful and delicious of fruits, ripens just between cherries and peaches and is of great value through the peach districts. Plant the tree in among the plums. The tree is even more hardy than the peach and requires about the same treatment. The Russian Apricot, which was introduced by Prof. J. L. Budd, of Ames, Iowa, is somewhat more hardy than the American type. We do not recommend the American for planting north of Missouri or Kansas.

American Sorts

Harris—Large, oval, bright yellow with red cheek; flesh tender, sweet and good; tree hardy, productive.

Moorpark—One of the largest and finest Apricots; yellow with a red cheek, flesh orange; sweet, juicy and rich, parts from the stone. Very productive.

Russian Sorts

Alexis—Another new and very handsome variety. Medium to large; yellow, with a red cheek; flesh slightly acid, but rich and luscious. Very hardy and an abundant bearer.

Budd—Late, white with red cheek; sweet and juicy; strong grower, good bearer.

Quinces

One of the most profitable and attractive market fruits. It does not take kindly, however to our soil and climate, and yet in places where the right conditions are met it has succeeded well. We do not recommend it, however, for planting this far north. The quince is of late attracting a great deal of attention as a market fruit. The tree is hardy and compact in growth, requiring but little space and comes early into bearing. It is much desired for canning along with other varieties of fruit. Tree needs mellow, rich soil with plenty of moisture.

Champion—Fruit large, fair and handsome. The tree bears abundantly while young. Flesh cooks as tender as an apple and without hard spots or cores; flavor delicate. The most valuable of all.

Orange—Large, roundish, somewhat irregular, with a small short neck at the base; fine golden-yellow flesh and of excellent flavor.



Champion Quince.

Grapes

The grape is the most healthful of all fruits and most highly esteemed for its many uses. It can be grown by anyone who has a garden or yard, and a little time to give to it.

The vines can be trained up the side of a building or garden fence or over an arbor, but the more profitable way is to grow them on a wire trellis.

Soil—Good grapes are grown on various soils, sandy, clayey or loamy. The soil must be well drained and there should be a free exposure to the sun and air. Hillsides unsuitable for other crops are good places for grapes. In cold climates and exposed situations plant deeper than in warm ones, to avoid injury by severe freezing. For the same reason plant deeper in a loose soil than in a compact one. If the

Agawam.

soil is clayey or wet, plant some seven or ten inches deep, and in the fall plow up to them, leaving a dead furrow between the rows to carry off the water. If ground is dry and gravelly or sandy, plant not less than twelve to fifteen inches deep.

Crops—Grapes should not be permitted to over-bear, if you would have fine, well-ripened fruit. A vine is capable of bringing only a certain amount of fruit to perfection proportioned to its size and strength, but it usually sets more fruit than it can mature. Reduce the crop early in the season to a moderate number of good clusters and cut off the small, inferior branches. A very heavy crop is usually a disastrous one.

Pruning—Annual and careful pruning is essential to the production of good grapes. If the roots are called upon to support too much wood, they cannot bring to maturity a fine crop of fruit. By proper pruning you concentrate the vigor of a vine into a smaller number of canes and clusters, which it can perfect. The pruning should be done in November, December, February or March, while the vines are entirely dormant and before the sap starts.

Train Vines—We recommend growing grapes on the trellis method. The trellis may be constructed by planting 9-foot posts about 12 feet apart, setting them about 3 feet in the ground. Three or four wires should be used, the first wire being 18 inches from the ground and the other wires about 12 or 14 inches apart. Rows should be at least 10 feet apart, a greater distance preferable, and the vines 10 to 12 feet apart in the row. When the growth commences in the spring, the young shoots must be reduced by disbudding so they may stand a foot apart on the cane, selecting, of course, strong, healthy shoots. As they grow they are tied up to the second, third or top wire and all superfluous shoots are removed. The fruit-bearing shoots are





Moore (Moore's Early)—A large grape of good quality, ripening about two weeks earlier than Concord; good grower; makes a moderate yield; very valuable as an early grape.

Worden—Seedling of the Concord, which it greatly resembles in appearance, but the berries are larger, and the flavor generally considered better. The fruit ripens several days earlier.

Red Grapes

Agawam—Bunch large, shouldered; berry large and round; reddish brown in color; tender, juicy, and of excellent flavor. Very vigorous and productive. Vine hardy and one of the best of its class.

Brighton—Bunch large, shouldered; berries medium size, round, dark red, tender, very little pulp, sweet, juicy, slightly aromatic. Ripens early.

Salem—Bunch large and compact; berry large, of a light chestnut color; thick skin, perfectly free from hard pulp; very sweet and has a most exquisite flavor; as early as Worden; keeps well.

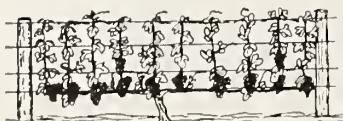


Fig. 1. Fruited Grape Vine.



Fig. 2. Bearing Vine Before Pruning.



Fig. 3. Pruned Vine.

GRAPES—Continued.

allowed to extend themselves at will until September, when they should be pinched off at the end to assist the ripening of the wood.

The vine in the autumn with the fruit on it will present the appearance of Fig. 1. In the fall with the leaves off before pruning, the vine will resemble Fig. 2.

The next pruning, which may be done in November or December, (if desirable to let the vines down and cover them for the winter), or in February or March if not laid down, consists in cutting back all young wood of the previous season's growth except such shoots as are required to extend the horizontal arms to within one or two good buds of the bearing canes on the lower wire, giving the vine the appearance of Fig. 3.

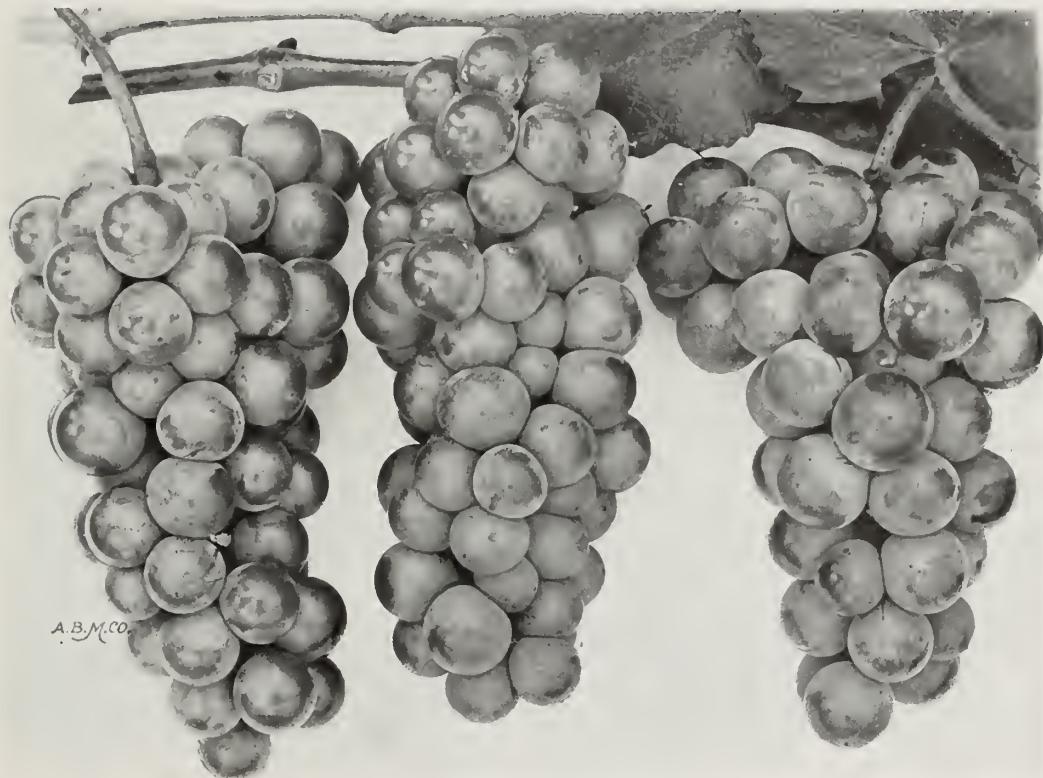
Each season thereafter the vines are to be treated in the same manner, cutting back every year to the lower wire, extending the vine only in a horizontal direction. Thin vines in the rows by digging up every other plant if necessary.

The fruit should not be grown above the second wire on the trellis.

Black Grapes

Campbell (Campbell's Early)—A new, large, early black grape. Strong, vigorous, hardy vine with thick, healthy leaves; clusters very large, usually shouldered and compact. Berries large and nearly round, rich, sweet flavored, very good; skin thin; seeds few and small, parting easily from the pulp; a good shipper. Ripens very early, but remain sound on the vines for many weeks. This makes it one of the most satisfactory and profitable market sorts to grow.

Concord—One of the most popular and reliable varieties we possess; bunch large, compact and shouldered; berry large, round, almost black with blue bloom; juicy and very sweet.



Pocklington.

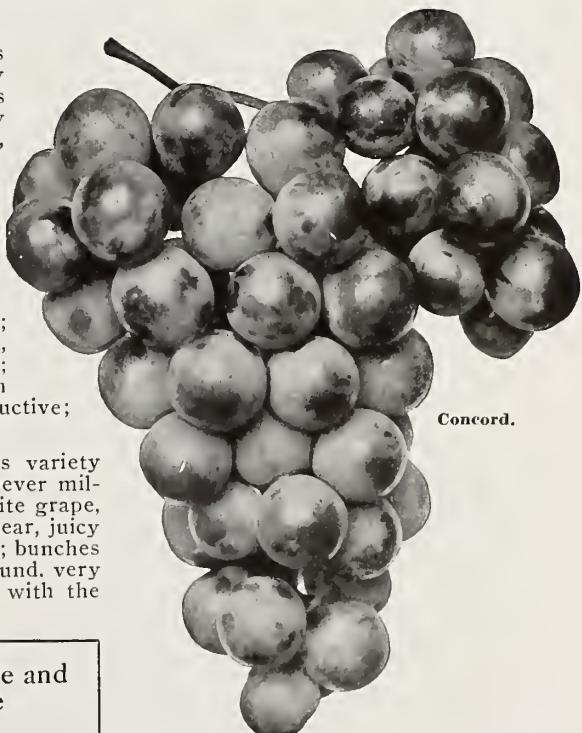
White Grapes

Diamond (Moore's Diamond)—A vigorous grower, with dark healthy foliage; entirely free from mildew. A prolific bearer; bunches large, handsome and compact, slightly shouldered; color delicate greenish-white, with rich yellow tinge when fully ripe. Skin smooth and free from specks; pulp tender, juicy and nearly transparent, with very few seeds; berry about the size of Concord. Ripens about two weeks before Concord.

Niagara—Bunch medium size, compact, sometimes shouldered; fruit of uniform size; skin thin but tough; pale green at first, changing to a pale yellow when fully ripe; it has a musky odor which disappears when fully ripe; vine vigorous, healthy, productive; ripens with Concord.

Pocklington—Seedling of the Concord. This variety is a strong grower and thoroughly hardy; never mildews in vine or foliage. This is called a white grape, but the fruit is a light golden yellow color, clear, juicy and sweet to the center, with little or no pulp; bunches very large, sometimes shouldered; berries round, very large and thickly set; quality fine. Ripens with the Concord.

See pages 58, 59, 60 and 61 for advice and instructions on spraying and the proper care of fruit.





Cumberland Raspberries.

Raspberries

The great improvement in the hardy varieties makes the growing of this fine fruit comparatively easy; any good soil will do, but a light, loamy one is preferable. Plant in rows five or six feet apart, leaving four feet between the plants; remove the old canes as soon as the fruit is gone, and do not allow more than three or four new ones to each hill; pinch the young canes when three or four feet high, and continue pinching in the laterals when a few inches long. Treated in this way they will need no stakes, but will support themselves.

Black Raspberries

Cumberland—The largest raspberry known, fruit frequently seven-eighths to fifteen-sixteenths of an inch in diameter. Its immense size, firmness, and great productiveness entitles it to first consideration; unusually strong grower, throwing up stout, stocky canes; perfectly hardy. Is by far the most profitable raspberry grown for both home and market use.

Gregg—This is a large, late, blue-black berry. Produces heavy growing canes that branch out sparingly; hardy; produces firm, black berries, covered with a deep bloom. Late ripening and good quality make it a favorite.

Kansas—A seedling originated at Lawrence, Kansas. Berries very large, jet black, and of the very best quality. It stands the trying climate of Iowa.

Mammoth Cluster—A very productive variety of the black caps. Quality good; ripens before the Gregg.

Older—Originated in Iowa and has stood all our severest winters well. Coal black, as large as Gregg and five days earlier.



Kansas Raspberries.

Yellow Raspberries

Golden Queen—Large, beautiful translucent yellow color and exceptionally firm; very productive. The canes are of the strongest growth and quite hardy.

Red and Purple Raspberries

Cardinal—Originated in Kansas; heavy grower, hardy; berries firm and of excellent quality; very productive.

Columbian—The Columbian is a new variety of the Shaffer type, of remarkable vigor and productiveness. Not very hardy; propagates from tips. Fruit very large, often an inch in diameter, shape somewhat conical; color dark red, bordering on purple; adheres firmly to the stem and will dry on the bush if not picked; seeds small and deeply imbedded in the rich, juicy pulp with a distinct flavor of its own. Succeeds wherever red sorts do well. A most delicious table berry.

Cuthbert—Canes tall, vigorous and very productive; berries large, conical, rich crimson color; best quality; good shipper.

Loudon—The superior points of this excellent red raspberry are vigor of growth, large fruit, beautiful rich, dark crimson color; good quality and marvelous productiveness and hardiness. Stands shipping better than most.

St. Regis (Everbearing)—Raspberries for four months, and raspberries the first season. The St. Regis Raspberry is of iron clad hardihood. The canes stand severest cold uninjured. Its foliage never suffers by sunburn or scald. The cane growth is not impaired by the heat or drouth of summer. It is the earliest of all red raspberries. It is wonderfully prolific, the first or main crop being far greater than



Cuthbert.

that of any other red variety known. It gives a crop of fruit all summer and autumn, fruiting on the old canes in generous quantities until late in August. By this time berries begin to ripen on the young, that is, current year's canes, which continue to produce in increasing numbers until late autumn, in fact, until severe frost. Berries are bright crimson, of large size and surpassing quality. Texture is firm; can be kept in good condition longer after being gathered than any other red raspberry. A favorite as a shipper. St. Regis yields a crop the season it is planted. Plants set in early April gave ripe berries the latter part of June. For four weeks thereafter the yield was heavy and canes continued to produce ripe fruit without intermission until the middle of October. Berries were large, beautiful, firm, and full flavored to the very last.



St. Regis
Everbearing
Red Raspberries.

Blackberries

The growing of this very delicious and healthful fruit is attended with so little trouble and expense that every garden, however small, should have at least fifty plants. For cooking purposes they are unsurpassed, and will yield a dark wine of excellent quality.

Any moderately rich soil will answer for their cultivation, but to avoid a too strong growth and straggling habit the ends of the shoots must be occasionally pinched in during the growing season, thereby encouraging the plants to form dwarf bushes, making it easier to work among them, and at the same time causing the plants to produce a larger crop and finer berries. An annual dressing with manure will produce an excellent effect on the succeeding crop of fruit.

Early Harvest—This is one of the earliest blackberries, but needs winter protection. Fruit medium size, quality good, and prolific bearer.

Erie—This is the most vigorous and healthy plant of any blackberry we have ever grown and absolutely hardy. Very productive; berries of the largest size, coal black, firm and solid. Ripens early.

Mersereau—Originated in northwestern New York. Renowned for hardiness of cane, great productivity and large size of berry. Is not "seedy" like many other sorts. Fruit jet black, and does not change color. Berries rich and luscious, with little or no core. It has a record of yielding 12,000 quarts per acre.



Early Harvest Blackberry.

Rathbun—This new blackberry has been tested over a wide area and is said to surpass any blackberry on the market. Berries large, jet black and of very fine quality. Ripens early.

Snyder—The old standard. Very hardy, consequently much raised in cold climates. Berries medium size, juicy, rich; strong, stout cane; thrifty growth and a very broad leaf.

Stone (Stone's Hardy)—Claimed to be even hardier than Snyder. A vigorous grower; berries glossy black and of good flavor. About eight days later than Snyder.

Dewberries

The Dewberry, or trailing blackberry, should be trained to a stake, or it can be worked regularly on a small trellis. It should be planted in rows about six feet apart and four feet apart in the row. When the cane or vine has made a growth of five or six feet, it should be cut back. Otherwise treat the same as you would raspberries.

Lucretia—Fruit very large, luscious and handsome; perfectly hardy, a strong grower and enormously productive; a superb and very profitable market fruit; the vines should be allowed to remain on the ground during the winter and staked up early in the spring.

Huckleberries

(Dwarf June Berry). Grown in the garden in the same manner as currants and gooseberries, for the abundant crop of berries, which are blue-black when fully ripe, and are sweet and juicy.



Lucretia Dewberry.



Perfection Currants.

Perfection — The latest introduction, created by crossing Fay's Prolific with White Grape, and combines the best qualities of both parents. In color, a beautiful bright red, and of a size larger than the Fay; the clusters average longer and the size of the berries is maintained to the end of the bunch. It is one of the most productive currants we have ever known, and in quality it is superior to anything in the market today, being of a rich, mild, subacid flavor and having plenty of pulp with few seeds. It was awarded the Barry Medal of the Western New York Horticultural Society in 1901, and the Pan-American Medal the same year—the highest award given in any new fruit.

Victoria—A large, bright red, late currant; bunches very long; very productive and valuable. This is a standard, good and reliable currant. Continues in fine condition for a long period. Ripens later than others.

White Grape—Very large, yellowish-white; sweet, or very mild acid; excellent for the table. The most productive of the white sorts.



Currants

Currants ripen just before raspberries are gone, and continue in prime order for several weeks.

There is no more useful fruit than the currant, and it is among the easiest to cultivate. Owing to its great demand for jellies and other cooking purposes the demand usually exceeds the supply, forcing a high market price.

The currant flourishes in almost any kind of soil, but to have the fruit in perfection, plant in deep, rich soil and give good annual pruning and cultivation. All the older and feeble suckers should be annually removed. The bushes should be planted about four feet apart in the garden.

Black Naples—Very large; rich and tender; a black currant excellent for jellies and wine. Very productive.

Cherry—The largest of all red currants; berries sometimes more than one-half inch in diameter; bunches short; plant very vigorous and productive when grown on good soil and well cultivated.

Fay—For size, beauty and productiveness the most remarkable red currant ever grown. The berry is fully equal to Cherry currant, while the flavor is much superior. The cluster is double the length on an average, and the fruit hangs on well, never dropping.

Holland—A very strong grower; canes stout and capable of holding up the enormous crop it always bears. It is quite late, thus prolonging the season.

Pomona—This is one of the most profitable currants for market; while not largest in size, it outyields all other varieties. A beautiful bright red, berry sweet and less acid than most of the general varieties; good size; a vigorous grower, with healthy, hardy foliage.



White Grape Currants.

Gooseberries

The Gooseberry delights in a deep, exceedingly rich soil, as recommended for currants, and thorough mulching. Gooseberries have never received the attention they deserve. The markets are scarcely ever fully supplied. Each year the demand is greater and no one will make a mistake in planting quite liberally of this most healthful, invigorating fruit. The gooseberries bear most freely on two and three-year-old wood. Therefore, the aim would be to keep a continuous supply of vigorous shoots. Prune freely to encourage upright growth.

Carrie—A strong, vigorous grower and wonderfully prolific; perfectly hardy and free from mildew; fruit good size and of excellent quality. Originated in the state of Minnesota.

Downing—Fruit very large, flesh whitish green, soft, juicy and good; plant vigorous and prolific; one of the best. A favorite for family use, and is also a good market berry.

Houghton—The old well known sort; pale red, sweet and good. It is rather small, but a productive, healthy and very reliable gooseberry.

Industry—Very large and dark red; hairy, of delicious quality. In a cool, rich soil with a northern exposure, it will yield an abundance of large, delicious fruit. Under favorable conditions its immense crops and exemption from mildew will repay the attention it requires. Not an iron clad; an English sort.

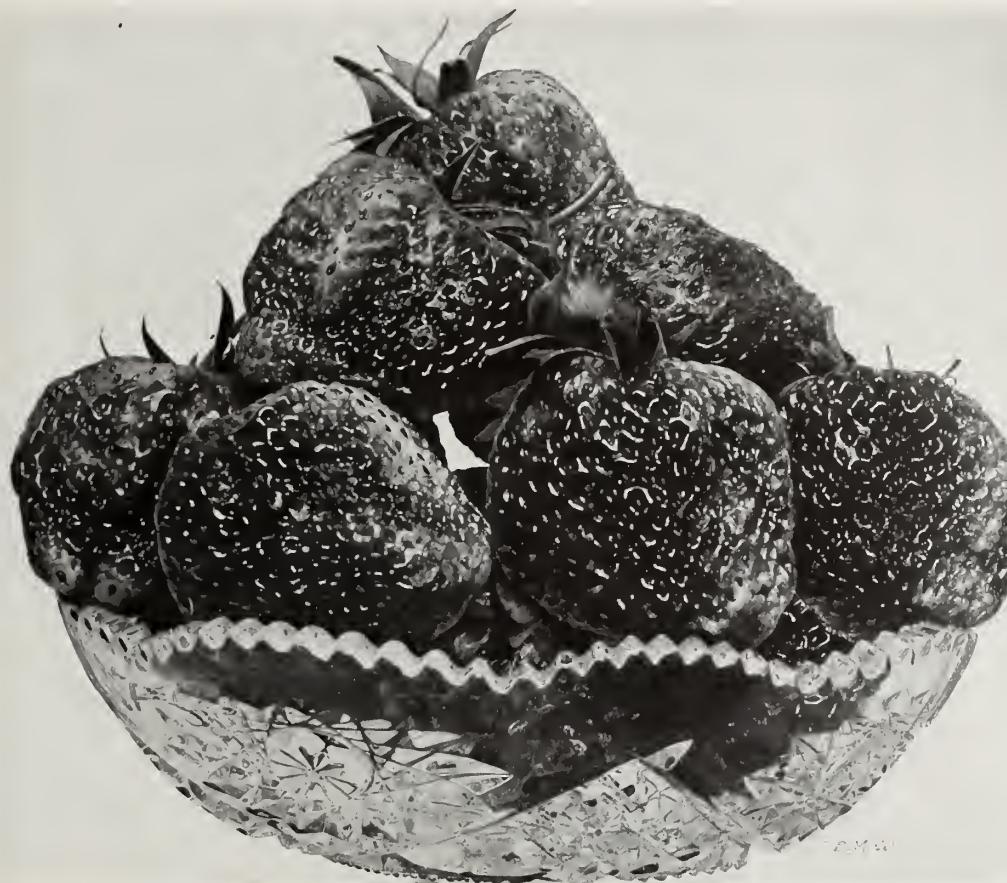
Pearl—A cross between Houghton and one of the large English varieties. It is very hardy and entirely free from mildew; superior in size and quality; more productive than Downing, and is likely to supersede this standard sort. The Pearl is an exceedingly prolific variety that has been exceptionally well tested and ranks No. 1 in healthfulness, vigor and growth. The same color as Downing. Valuable for home use and market.

Red Jacket—A smooth red berry of large size; quality of the best, very prolific and hardy. Absolutely free from mildew in leaf and fruit. Capable of producing large crops under ordinary cultivation.

Smith—Much like Downing; strong grower; large berry; productive only under high cultivation. Somewhat oval in form, light green with a bloom; flesh moderately firm, sweet and good.

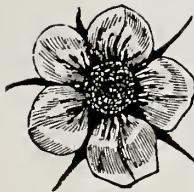


Downing Gooseberries (Actual Size).

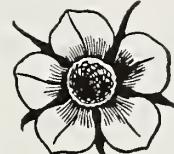


Dunlap.

Strawberries



Perfect.



Imperfect.

Strawberries will succeed in any soil that is adapted to any ordinary farm or garden crops. Soil should be thoroughly prepared to a good depth, well drained and enriched. For field culture set in rows three or three and one-half feet apart, fifteen to eighteen inches in rows; for garden, fifteen to eighteen inches each way, leaving pathway every third row. Ground should always be kept clean and well cultivated. Protect the plants in winter by a covering of leaves, straw or some kind of litter. Do not cover them until ground is frozen, or so deep as to smother the plants. When berries are set discontinue cultivation and mulch lightly, which will keep the fruit clean and the soil in good condition during the fruiting season.

Staminate or perfect flowering varieties are market (Per.). Pistillate or imperfect flowering varieties are marked (Imp.). Perfect flowering plants will bear satisfactorily when planted by themselves, but not so with the imperfect flowering plants. These should have every third or fourth row planted with some good perfect flowering variety.

Spring-bearing Varieties

Bederwood. (Per.)—This is one of the best standard varieties for market. It is early, a very strong yielder and continues a long time in bearing. A very strong staminate, the very best fertilizer for Warfield, Crescent or Haverland.

Belt. (Per.)—The plant is very large, a most luxuriant grower, and remarkably productive. It is medium in ripening; its size is very

large. In form it is conical, rather long, quite uniform in shape, except that the first berry on a stalk is sometimes misshapen, especially with high culture. The color is a bright glossy red. It ripens all over without green tips. The quality is fine. It is a fine grower of large, well developed berries of excellent quality.

Bubach. (Imp.)—Very prolific, of excellent flavor, and in size "simply immense." Berries all average large.

SPRING-BEARING VARIETIES—Continued.

Brandywine. (Per.)—A splendid grower, fair plant maker, very productive. The fruit is very large, heart-shaped, firm, of good flavor and good color. It begins to ripen in mid-season, but continues till nearly all other varieties are gone.

Crescent. (Imp.)—This is an old and reliable sort. It is especially adapted for sandy soil, as it is a great plant producer. On rich loam it makes an overgrown matted row. This has been called the "lazy man's berry" because it will bear a heavier crop of berries on poor soil and under neglect than any variety known.

Dunlap. (Per.)—This berry is of the Warfield type, has a perfect blossom, is hardy, productive, a splendid keeper and able to hold its own under any "rough and tumble" methods of culture to which it is likely to be subjected. Is a very heavy bearer of good size, even fruit, of a very beautiful dark red color. It is a berry to grow for either home use or market.

Jessie. (Per.)—The plant is a stout, luxuriant grower; foliage light green, large and clean; it is a beautiful color, fine quality, good form, quite firm.

Parker Earle. (Per.)—This variety should be planted on rich soil. Should be grown in hills. Give it the best of cultivation and the crop will astonish you, but will prove a failure if planted on thin soil or matted rows. It sets so many berries that it cannot mature them on poor soil.

Rough Rider. (Per.)—Perfect blossom, very productive, extremely vigorous, very large and attractive; the firmest, the very latest, the best keeper, the finest flavor, sells at highest prices. Berries very large, irregular in shape, dark colored. Promises to take its place as the very best late market variety.

Warfield. (Imp.)—There is probably no better or more profitable berry grown for market. It is in greater demand than any other berry for canning purposes, which also creates a good market for it. Care should be taken to use the right berries as fertilizers. It needs a strong pollenizer. The fruit is regular in shape, dark red color, and is a splendid shipper.

Fall-bearing Varieties

Everbearing

Each year the popularity of the Everbearing is increasing. The initial price is all that saves the good old spring bearing sorts from being crowded off the market.

The best Everbearing varieties will not only yield handsome crops in the spring, but will be on hand with another good crop in the fall. When planted in the spring they will produce the first crop the following fall, and another the next spring, and still another the next fall, making them valuable and attractive to the tenant as well as the land owner. Proper care, such as mulching, cutting off part of the runners and removing the first set of bloom, will prolong the late spring crop and



Warfield.

From Photograph, taken
August 27, 1914.

Plant **Superb Everbearing**
for Profit.



Superb Everbearing.
Strawberries.

hasten the early fall crop so that the two will almost meet. Delicious strawberries all through September, October and November are a treat but one that is within the reach of everyone with a space of 10 feet square planted to Everbearings.

A late spring freeze would not deprive the grower of his crop; a new set of bloom will be on the vines in a few days. Unexpected drouth will not ruin the bed, as Everbearings are great drouth resisters. The flavor is excellent, and this, coupled with the fact that they will bear earliest in the spring and late into fall, enables the grower to catch all the "fancy prices" for his surplus in addition to enjoying October strawberry shortcake.

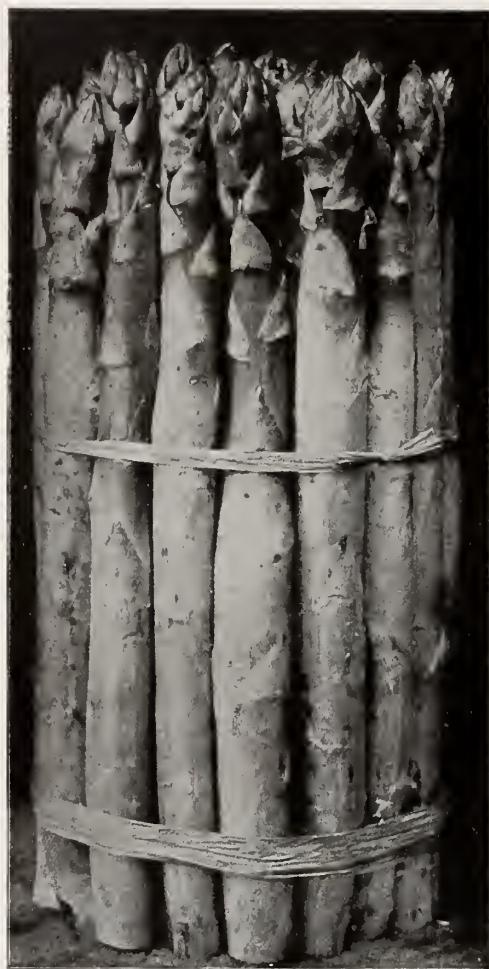
When selection of varieties of Everbearings is left to us, we furnish the Americus, Productive, Progressive or Superb, believing that at present they are the best varieties produced.

Americus. (Per.)—This is one of the most thrifty growers of any of the fall bearing varieties. It does not seem to be affected by the fall crop of fruit produced, and comes out in the spring looking as fresh and vigorous as a June bearing sort. The fruit is from medium to large in size, conical in shape, rich red in color and of a delicious flavor. The fruit of the Americus is produced both on the mother plant and on the new runner plants.

Productive. (Imp.)—This is a very strong growing sort like the Americus. The plants are large, having an exceptionally good root formation. It is a very heavy producer of from medium to large berries of very good quality. In fact it produces so abundantly that the fruit is smaller than it would be if some of the fruit stems were removed. The runner plants of Productive seldom fruit.

Progressive. (Per.)—The berries are not as large as Superb and not so good quality, but they yield well and, we think, will be one of the best known varieties of fall bearers in a few years. Fruit of Progressive is of good size, smooth, of good color and appearance.

Superb. (Per.)—This is the best and most profitable fall bearing strawberry grown. Superb berries are much larger than other varieties and of far better quality and better appearance. They will also outyield all other fall bearers. Superb are the best known and most largely planted of all the fall bearing strawberries. They produce a heavy crop of fine fruit wherever grown. The plants are strong and stand the winter well after producing a heavy crop of fruit from about August 1st till November 15th. The fruit of Superb is very large and round. It is a rich, glossy, dark colored berry, attractive and smooth. Each berry is of good shape and ripens all over at once.



Conover's Colossal Asparagus.

indispensable to secure large, heavy stalks. Plant in rows four feet apart, with the plants three feet distant. Set so that the crowns are about one inch below the surface. Top dress in the fall with stable manure and fork under in the spring. The great value of rhubarb has always been its earliness, and it deserves to be ranked among the best early products of the garden.

Cellar-grown rhubarb with beautifully pink, tender stalks, may be enjoyed in March by anyone who will devote a little time to it. For this crop the plants are grown from spring until fall in very rich soil so as to establish a number of crowns on each root. In the fall a number of roots are packed together with rich soil in some cool, dark cellar. After the crop has been cut, the roots are replanted in the garden to regain their vigor for the next year's forcing.

Linnaeus—Early, very tender, and has a mild subacid flavor, not "stringy" or tough. The plant is large, and for pies or other culinary purposes it is the housewife's favorite.

Victoria—Medium size, and quite a favorite in certain sections. It is early, tender and quite productive.

Eaton's Peach Flavored—Very early; large; tender, delicate, rich peach flavor. For pie and sauce it is excellent.

Place your orders early for nursery stock, before assortments are broken. It is sometimes impossible to procure varieties wanted if orders are delayed till planting time.

Asparagus

This earliest and finest of spring vegetables is among the easiest cultivated and most profitable. A bed once planted suffers no deterioration for thirty years or more, if it is properly attended to and well manured. See that the ground is well drained, naturally or otherwise; work it up fine and deep, and make it very rich with well-rotted barnyard manure. Locate the plants eight inches apart in rows three feet apart. Spread out the roots in a trench made deep enough to permit their crowns to be covered with three or four inches of mellow earth. Give the bed a liberal dressing of manure at intervals, and except near the seashore, three pounds of salt per square yard early every spring. Do not cut for use until the plants have grown two seasons.

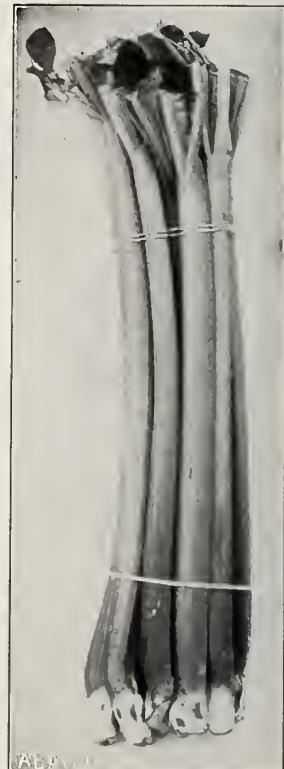
Conover's Colossal—This variety is much superior in size and quality to any of the old common sorts, being remarkably tender and fine-flavored. The large green shoots, one to two inches in diameter, are sent up thickly from the crowns, making it a very profitable variety.

Palmetto—Until recently we believed that Conover's Colossal was the best sort known, but we are now forced to concede that the Palmetto is earlier and a better yielder and more even and regular in its growth, and that it will eventually supersede the old favorite. It has been tested both north and south, and has proven entirely successful in every instance.

Rhubarb

This very desirable vegetable comes early in the spring. The large stems of the leaves are used for pie making and stewing. It is also valuable for medicinal purposes.

A deep, rich soil is



Linnaeus Rhubarb.



Ornamental Department

Roses

Long before history began the Rose was loved as now, for its beauty and fragrance. No home is truly a home without at least a few of these charming plants. Our Roses are strong plants, grown out of doors, well rooted and in every way desirable. They love a clayey soil and an open, airy situation, but will do well in any good soil. They well repay good treatment. Feeble, sod-bound plants cannot give free bloom. Roses require plenty of manure and good cultivation. Old and decayed branches and at least half the previous season's growth should be cut away early each spring, and a little cutting back after the first blooming will insure more late flowers. Mulch well with manure. All roses in this climate are benefitted by being laid down and covered in winter.



Crested Moss.

Moss Roses

Crested Moss—The deep pink buds are surrounded with a mossy fringe and crest; fragrant. One of the best.

Red Moss—Dark red; very large and full. Free in production of bloom; finely mossed.

Salet Moss—Clear rose color, very double, of vigorous growth and abundant bloom. Perpetual.

White Moss—Attractive in bud and open flower; white, sometimes tinged with flesh color.

Climbing Roses

Baltimore Belle—Pale blush, nearly white, very double; flowers in beautiful clusters; one of the best white climbers.

Prairie Queen—Bright rose in clusters, vigorous, very free bloomer.

Seven Sisters—Fine, free bloomer, bright scarlet. One of the best of the old-fashioned sorts; flowers borne in clusters.

Rambler Roses

Crimson Rambler—Nothing equals this as an all round hardy garden rose, on account of its brilliant color, profusion of bloom and length of time the flowers last. It may be used as a climber, or can be grown in large bush form. It blooms in large clusters of 50 to 100 flowers in a cluster, covering the foliage its entire length with a solid mass of the most beautiful, perfectly shaped miniature crimson blossoms. Blooms last of June and remains in flower longer than any other hardy out-door rose.

Dorothy Perkins—This is a splendid new shell-pink climbing rose. This new rose is of the same strong habit of growth as the Crimson Rambler, and the flowers are borne in clusters of thirty and forty and sometimes fifty to sixty. The flowers are large for a rose of this class. Very double and sweetly scented.



Dorothy Perkins Rose.



Crimson Rambler.

Flower of Fairfield (Perpetual Flowering Crimson Rambler)—Of the numerous varieties raised in the last few years, it is doubtless one of the best. Its flowers, which are produced in marvelous profusion, are of a fine crimson color and more brilliant than the common Crimson Rambler. The growth is vigorous, flowering freely and continuously throughout the season.

White Rambler—Pure, snowy-white, double flowers. Blooms in June. Not very satisfactory.

Yellow Rambler—Bud beautiful bright yellow, opening straw color, fading to a beautiful creamy white. Blooms middle of June. Not so desirable as the crimson.

Baby Ramblers

A type of Rose which is becoming very popular for bedding purposes. Shapely, compact, bushy specimens, about 18 inches high, blooming in great profusion from early in the season until severe frost.

Pink Baby Rambler—A brilliant rose color.

Red Baby Rambler—Crimson flowers. Very attractive and popular.

White Baby Rambler—Pure white flowers, produced in large candelabra-shaped trusses.

Hybrid Perpetuals

These are hybrids or crosses between June and Monthly roses, partaking of the hardiness of one parent and the perpetual blooming habit of the other. They are by far the most popular family of roses, needing good soil and culture, as they can bloom only on new shoots of the current season. Free manuring after first crop will insure better blooms later in the season.

Alfred Colomb—Bright carmine red; clear color, large, deeply built form; exceedingly fine.

American Beauty—The world-famous rose. Rich, rosy-crimson, exquisitely shaded. Magnificent buds. Flowers extra large and deep petaled; of beautiful form and very double. This hardy rose has the everblooming qualities of the Tea Roses, with the delicious odor of the La France. The great American forcer and bedder, each shoot producing a bud. A universal favorite. Not hardy.

Anne de Diesbach—Brilliant crimson, sometimes shaded with bright maroon. A superb garden sort; fragrant, one of the hardiest and best.

Baronne de Bonstettin—Rich, dark red, passing to velvety maroon; fragrant; very double.



Prince Camille de Rohan.



Paul Neyron.

Coquette des Alps—One of the finest pure white hybrid perpetuals; large, full and finely formed flower; pure white, sometimes faintly tinged with pale blush; profuse bloomer.

Druschki—This new rose comes from Germany. The flowers are large, of perfect form and snow-white in color; free and perpetual bloomer. Claimed by many to be the best white rose of its class yet introduced; bush a vigorous grower.

Dufferin—Rich, dark crimson, shading to maroon; large, full, fragrant; a good grower; one of the best dark roses.

General Jacqueminot—This might be called the rose for the million, for it is still a universal favorite. Bright crimson-scarlet, exceedingly rich and velvety.

General Washington—Color brilliant crimson; very rich and beautiful; large perfectly double and a free bloomer.

Madame Charles Wood—Flowers large; dazzling crimson; a constant bloomer; very fine.

Magna Charta—Bright, clear pink, flushed with violet crimson; flowers large, fine form, sweet, very double and free bloomer.



Rugosa Rose.

HYBRID PERPETUALS—Continued

Margaret Dickson—A very free grower, foliage large and dark. Flower white, with pale flesh center; petals are thick and bell-shaped; quite fragrant.

Marshall P. Wilder—New; color cherry carmine; continues in bloom long after others are out of flower.

Mrs. John Laing—Deep rose; large, fine form, fragrant, vigorous grower and hardy. One of the most profuse bloomers.

Paul Neyron—Deep rose color, good foliage; by far the largest variety in cultivation; one of the best.

Prince Camille de Rohan—Very dark, rich, velvety crimson, passing to intense maroon, shaded black; large full flowers. One of the darkest roses and very handsome.

Tree Roses

The Tree Rose is a novel and beautiful plant. The rose is budded on hybrid rugosa stock about four feet from the ground, which produces a stem or tree-shaped form.

These can be furnished in 5 varieties as follows: Red, White and Pink, Crimson Rambler, and Red Baby Rambler. The Tree Rose, however, is not hardy, and should be planted in a half-barrel or candy pail so as to be taken indoors during the winter.

Wichuraiana (Memorial Rose)

Creeps over the ground like ivy, or can be trained up to a trellis. Hardy, will grow in sun or shade, poor soil or rich. Will take care of itself and bloom every season. The flowers are single, large, pure satiny white, with bright golden center.

Miscellaneous Roses

In this collection we have grouped the best of the summer roses; they are hardy, requiring no protection, and thrive in exposed situations where most roses will not grow. Nearly all of them make beautiful hedges and are frequently used for this purpose. They require but little pruning, as most of their flowers are borne on the old wood.

Harrison Yellow—This variety blooms early, making a brave show with its bright yellow flowers. It has small, faintly fragrant leaves and very thorny stems. In this variety the flowers are of medium size, semi-double, rich golden yellow, and produced very freely.

Madame Plantier—Flowers pure white, of medium size; full, somewhat rosy in the bud form; produced in great abundance quite early in the season. The leaves are small; the bush hardy and spreading. Fine for masses, hedges, borders, cemeteries, etc.

Persian Yellow—Similar to Harrison Yellow, but with flowers fuller and of better form. Bright yellow; the most durable of this class. Finest hardy yellow rose.

Rugosa Red—Single, bright rosy crimson, succeeded by brilliant berries of much beauty.

Rugosa White—Single, pure white, having five petals and highly scented.



Tree Rose.



An Effective Entrance Planting.

Ornamental Shrubs

The planting of ornamental shrubs is very largely on the increase, and this is as it should be, for with a good selection the lawn can always be beautiful. They are mostly of medium size, enabling one to plant a great variety on a small plat, and the most wonderful assortment of foliage from the darkest green and purple to light orange and silver tints. This addition to the great variety in the blossoms, all unite to keep up a never failing interest. We have selected the very best for our climate.

ACACIA ROSE - *Robinia*

An elegant shrub, with light green pinnate leaves and long, graceful clusters of pea-shaped flowers in great abundance in June and often throughout the summer. This shrub is renowned for its tough, indestructible hard wood.

ALTHEA, or ROSE OF SHARON - *Hibiscus*

Valuable because they bloom so profusely in late summer, when the other flowers are scarce. They form beautiful groups or hedges, their variety of colors making it possible to use quantities of them even in small grounds. Thrive in any fertile soil.

Bridal Wreath—See *Spirea Van Houttei*.

CALYCANTHUS

A well known native shrub bearing very double, purple fragrant flowers. This is a very interesting shrub, having a rare and peculiar fragrance of wood and flowers. Blooms abundantly.

DEUTZIA

A very desirable shrub of strong, hardy growth, bearing an abundance of beautiful racemes of double, pure white flowers. One of the most desirable shrubs to plant as an individual specimen or for grouping. Their hardiness, luxuriant foliage and profusion of attractive flowers, renders them deservedly among the most popu-

lar of flowering shrubs. Of easy culture, thriving in almost any well-drained soil.

FLOWERING ALMOND - *Amygdalus*

Pink and white varieties. These beautiful shrubs are desirable and scarce. Hardy. They are splendid garden subjects, and should have a prominent place in all shrubbery plantings. One of the best of the flowering shrubs and highly recommended.



Deutzia gracilis.



Bechtel's Flowering Crab.

FLOWERING CRAB, BECHTEL'S*Malus Bechteli*

About the middle of May the trees are covered with beautiful, double, pink, sweet-scented flowers, that look like small roses at a distance. Tree is a moderate grower, hardy and of upright habit. One of the very best.

FLOWERING PEACH - *Persica vulgaris*

A double white form of the common peach. Not only do the Flowering Peaches make beautiful garden objects, but they are very valuable as cut flowers. No garden is complete without one or more of the beautiful double-flowered forms of the peach. Flowering Plum—See *Prunus Pissardi*.

FLOWERING THORN, PAUL'S
Crataegus Pauli

Of quick growth and showy. Flowers are in clusters, very double, large and full, and a deep rich crimson. A small tree or large shrub with spreading branches. The most showy of the double flowering Thorn.

GOLDEN ELDER - *Sambucus*

The leaves are a bright and constant golden color; flower cluster pure white. Valuable for contrasts and for massing. These are very hardy, vigorous growing shrubs with showy flowers and a profusion of berries. They thrive best in moist, loamy soils, and are well adapted for water-side and border planting.

HIGH BUSH CRANBERRY
Viburnum opulus

Both ornamental and useful. Its late red berries, resembling cranberries, hang until destroyed by frost late in the fall. Resembles the Snowball in wood and foliage. A tall shrub, with upright, spreading branches, 8 to 10 feet tall, widely distributed in the northern hemisphere. Leaves broadly ovate, three-lobed, bright green. The flowers are white, disposed in flat-topped clusters in late spring and early summer. Berries scarlet, persisting all winter; very showy.

HONEYSUCKLE - *Lonicera*

White and pink flowers which contrast beautifully with the foliage. Blossoms in June. Handsome upright shrubs. Most of the species are very hardy. They thrive in almost any fertile soil, and in most instances prefer sunny situations. Invaluable for border or mass planting. Is a strong upright grower, blooming profusely.

HYDRANGEA PANICULATA
GRANDIFLORA

These plants are absolutely hardy, grow in any soil and bloom the same year they are set out. They flower abundantly, bearing hundreds of immense panicles of bloom. White, turning to rose color in autumn. An annual shortening of branches tends to increase the size of the flowers. Very fine and valuable for cemetery planting. Grown in rich soil, in beds or masses, and cut back nearly to the ground every spring before growth starts, it is a most magnificent bed for landscape work.

JUDAS TREE, or RED BED
Cercis canadensis

A small tree with a wealth of floral beauty. Leaves are heart-shaped, deep rich green, fading with tones of bright clear yellow. Flowers produced in early spring, almost concealing the branches. Borne in clusters of four to eight, of a beautiful rose-pink. One of the best of the flowering shrubs.



Bush Honeysuckle.

LILAC

The Lilac appears to best advantage when massed in groups, and only a few varieties of but one or two colors. You may make any number of groups of the different colors; they are easily transplanted in either fall or spring. Moderately rich, moist soil suits them best. The dead flowers should be removed when the blooming season is over, as they give an untidy appearance; should not be pruned in winter or spring, as it destroys the flowers.

Common Purple (*Vulgaris*)—The familiar species of all fine old gardens, with dense panicles of lilac flowers, still most fragrant of any.

Common White (*Vulgaris alba*)—Pure white, very fragrant flowers.

Persian Purple (*Persica*)—A fine old species with slender branches and narrow leaves; it seldom grows more than three to five feet high. Its pale lilac flowers are very fragrant, borne in large loose panicles. Very graceful.

Persian White (*Persica alba*)—Same habit of growth as the foregoing. Blossoms in long panicles, white, tinged with purple.



Hydrangea paniculata grandiflora.

PURPLE FRINGE, or SMOKE TREE

Rhus Cotinus

A much admired shrub for its purplish, misty-looking flowers, borne in early June. In the fall the leaves change to brown, red and yellow colors. Flowers pale purple, borne in loose panicles, the pedicles of which soon lengthen and become plumes, lending the smoky aspect giving to the plant its common name. A highly ornamental object.

PRUNUS PISSARDI - Flowering Plum

A distinct, handsome little tree, covered with a mass of small single white flowers in spring, later with showy pinkish purple leaves that deepen in color to the end of the season. Valuable for ornamental hedges or planting in quantity for contrast. It is perfectly hardy wherever the common plum will stand, and is a beautiful ornament to the lawn at all times of the year. One of the most attractive trees.

Red Bud—See Judas Tree.

Rose of Sharon—See Althea.

Smoke Tree—See Purple Fringe.

SNOWBALL, Common - Viburnum opulus sterile

A group of hardy shrubs with handsome, showy flowers, produced in large, globular clusters. All of the flowers are sterile and radiant, and appear in numerous compact balls in the spring. An old time favorite, and without doubt one of the best of the flowering shrubs. As specimen plants the Snowball has few rivals, and for grouping and massing make possible many charming effects.

SYRINGA OR MOCK ORANGE
Philadelphus

A tall, vigorous and hardy bush. In May it bears profuse white flowers resembling orange blossoms. These shrubs are very valuable for backgrounds, screens, grouping or specimen plants. The beautiful white flowers are fine for cutting.

ABM CO

Purple Fringe or Smoke Tree.





Tree Lilac.

TREE LILAC, Purple or White

Well known varieties of lilac pruned and trained to a small tree. The tree lilacs make splendid single specimen plants on the lawn, and as decorative shrubs are very desirable. The lilacs are again coming into well merited popularity.

TREE ALTHEA

The ordinary Althea, pruned and trained to a small tree.

TREE HYDRANGEA

The same as *Hydrangea Paniculata Grandiflora*, but grown on stems three to five feet high. Most attractive and desirable.

SPIRAEA

All the Spireas bloom extravagantly, which makes them decidedly striking. A good collection of them will give flowers the entire season. There is a great variety in their inflorescence, and in the habit of the shrubs, so there can be no danger of monotony in such a collection. All the species are very hardy, and easily grown, and will be found useful for specimens, groups, screens, borders, ornamental hedges, etc. Their wide range of foliage, flowers and season make them indispensable.

Anthony Waterer—Makes a low, compact bush, covered nearly the whole season with umbels of deep crimson flowers. Desirable for massing or bedding, as well as for single specimens.

Aurea (Golden Spirea)—Golden-leaf Spirea, with white blooms and golden foliage; very showy. This variety is considered one of the very best of our yellow-leaved shrubs. Golden-yellow all summer. Very highly recommended.

Billardii—Blooms in beautiful rose-colored spikes from early summer till frost. Hardy and very desirable. A hardy, upright shrub with brownish branches, growing four to five feet tall. Of garden origin. Leaves oblong, bright green above, pale or grayish beneath. Very showy and attractive, and splendid for cut-flowers.

Collosa Rosea—Flowers from June to September; of a pretty, dwarfish habit; bloom rose color.

Van Houttei (Bridal Wreath)—Graceful, with long, drooping sprays, thickly studded with handsome pure white flowers; hence its popular name of "Bridal Wreath." This is the finest and probably the most beautiful of Spireas. In May and June the arching branches are actually covered with little white flowers. The foliage is very beautiful, having dark green leaves, incised borders, pale bluish-green beneath, and persisting until late autumn.

Spirea has been much used for making wreaths and garlands. The shrub grows to six feet, is hardy and is much planted for borders and single specimens. Perfectly hardy, vigorous grower and fine for a fancy hedge and as a screen.

WEIGELA ROSEA - *Diervilla rosea*

An elegant shrub, with fine rose-colored flowers, introduced from China by Mr. Fortune and considered one of the finest plants he has discovered. Has numerous spreading branches. Leaves are dark green, smooth except on the midrib and veins. The flowers are large and showy and are produced in great panicles. Erect, compact growth. Blossoms in June.



Spirea Van Houttei. (See page 38)



Paul's Flowering Thorn (Crataegus)
(See page 36).



Flowering Almond (Amygdalus).
(See page 35).



Weigela Rosea.
(See page 38).



Althea, or Rose of Sharon.
(See page 35).



Common Snowball (See page 37).



Prunus Pissardi, or Flowering Plum (See page 37).



Hall's Japan Honeysuckle.

Hardy Climbing Vines

Ornamentals of this class are so hardy and beautiful that they deserve greater attention than they receive. No artist can produce pictures equal to the wealth of beauty displayed by the elegant Wistaria, the graceful Honeysuckle, or the charming

and magnifieent Clematis when in the glory of full bloom, and there is nothing in art that will in any way compare with the gorgeous hues of the Ampelopsis after it assumes its brilliant autumnal tints.

Nothing lends such pleasing effect to wall or veranda as the judicious use of vines. The hardy vine is best adapted for covering an unsightly wall or for furnishing shade and ornament to verandas. With the advent of spring the tendrils are given new life, and as the season advances they soon become a glorious veil of vernal verdure.

Hardy vines practically take care of themselves after once established and are much more desirable and less trouble than annual or tender varieties. Without climbing vines many beautiful homes would present a sad and unprotected picture during our hot summers. In addition to the attractiveness they also give the home that appearance of exclusiveness that cannot be had in any other way.

AMPELOPSIS VEITCHII Boston Ivy

Leaves small and ivy-like in form. By overlapping each other they form a dense sheet of green. The plant requires a little protection the first winter until it is established.

American Ivy—See Virginia Creeper

BIGNONIA - Trumpet Vine

Splendid climber, vigorous, hardy, with clusters of large, trumpet-shaped scarlet flowers in August.

Boston Ivy—See Ampelopsis Veitchii.



Ampelopsis Veitchii

CLEMATIS

The different varieties and species of Clematis now in cultivation are of the highest beauty and utility. They vary greatly in their foliage and flowers and are adapted to various uses.

Andre—Flowers large, of a beautiful, bright velvety red, very free flowering and continuous bloomer.

Henryii—Fine bloomer: flowers large, of a beautiful creamy white, consisting generally of from six to eight petals. June to October.

Jackmanii—A very profuse-blooming variety with flowers from four to six inches in diameter, of an intense violet-purple color, borne in continuous masses on the summer shoots. The very best sort for general planting.

Paniculata—A great novelty. One of the most desirable, useful and beautiful of hardy garden vines; a luxuriant grower, profuse bloomer, with fine foliage. Flowers white, of medium size, very pretty and fragrant, produced in the greatest profusion in late summer.

DUTCHMAN'S PIPE

A native species of climbing habit and rapid growth, with very large, heart-shaped leaves and curious pipe-shaped, yellowish-brown flowers.

HONEYSUCKLE

Hall's Japan Honeysuckle—See Honeysuckle, Yellow.

Red Honeysuckle—A strong, rapid grower; blooms very freely the entire season; bright red trumpet-shaped flowers.

Yellow Honeysuckle (Hall's Japan)—A strong, vigorous variety, evergreen in the south; pure white flowers changing to yellow. Fragrant; covered with flowers from June to November. Needs winter protection.

Trumpet Vine—See Bignonia.

VIRGINIA CREEPER - American Ivy or Woodbine

A very rapid-growing vine covered with heavy leaves affording shade; of great beauty when changing to scarlet in autumn. The best



Clematis Jackmanii.

climber to grow over porches, rocks or tree stumps. One of the most hardy.

WISTARIA

A most beautiful climber of rapid growth, producing long, pendulous clusters of pale blue flowers. When well established makes an enormous growth. It is very hardy and one of the most superb vines ever introduced.

Woodbine—See Virginia Creeper.



Wistaria.



Hardy Phlox in Border.

Hardy Herbaceous Perennials

These can be used to best advantage in groups and beds on the lawn, as borders for drives, walks, or in front of shrubbery and in the garden. Some of the tall growing sorts may be planted in among the shrubbery with good effect. Most of the perennials can be planted in the spring or fall. Soil should be kept well fertilized. A light covering of coarse, strawy manure or something that will not pack is beneficial in winter.

BLEEDING HEART

The showy, heart-shaped flowers of rosy-crimson and silvery-white of this plant are borne on a graceful, drooping stem a foot or more in length. It is superb for the garden, and perfectly hardy everywhere. Flowers in April and May.

GOLDEN GLOW

Grows five to seven feet high and blooms from early summer until frost. Flowers resemble golden-yellow Cactus Dahlias.

IRIS

The Irises form a most useful, interesting and beautiful class of hardy plants. The flowers of the Japanese Iris are often 8 to 10 inches in diameter and of remarkably varied and beautiful colors. They thrive best in a rich and somewhat moist soil; their blooming season is from the middle of June to about August 1. The German Iris is one of the most desirable of early spring-flowering plants. The flowers are of large size and exquisite colors.



German Iris in Border.

HOLLYHOCK

The Hollyhock is an old garden favorite, full of sentiment and association with a distant past. It is a plant of strong, vigorous growth and noble aspect, with elegant camellia-like flowers that form perfect rosettes. They grow four to six feet tall—higher at times—and bloom from July to August.

PHLOX

These are justly esteemed as the finest of herbaceous plants. They are of dwarf habit, perfectly hardy, of very easy culture, and yield a profusion of bright, showy bloom. They are hardly equaled by any other hardy plant for the decoration of the garden.

YUCCA

An evergreen, with large, dense, circular tufts of long, stiff, sharp-pointed leaves, from the center of which rise the flower spikes in early spring. They are three to four feet high, stout, branching near the top, and supporting hundreds of large, drooping, waxen-white, bell-shaped flowers, that remain perfect for several weeks.

Peonies

A noble flower, almost rivaling the rose in brilliancy of color and perfection of bloom. A strong point in its favor is its hardiness. It may be truly said to be as hardy as the oak. Its vigorous habit and healthy growth, free from all disease and insects, are important arguments in favor of their cultivation. Each succeeding year adds to their size and beauty. The foliage is rich and glossy and of a beautiful deep green color, thus rendering the plants very ornamental even when out of flower.

The old-fashioned common peonies in our grandmother's garden can still be furnished in the common red, white and pink colors, but these have been eclipsed by the wonderfully improved sorts introduced in recent years. They are the "Queen of the Spring Flowers," valuable for planting in groups through the perennial or shrubbery borders where the brilliant hues add attraction all around.

These newer varieties produce very large, handsome, regularly formed blooms resembling large roses. No other flower is so well adapted for large, showy bouquets.



Yucca.

The requirements of peonies are so simple, a good rich soil, an open, sunny position, and a liberal supply of water during their growing season, being sufficient to give an abundant wealth of flowers. They are well adapted to the climate of our most northern states. They grow well in almost any soil, although the flowers will be finer and the colors brighter if planted in a deep, rich loam, well manured.

In addition to furnishing the old, common peonies in the red, white and pink colors, we have selected six of the newer special varieties which we especially recommend.

SPECIAL VARIETIES OF PEONIES

- No. 1 *Rosea*—Deep rose.
- No. 2 *Queen Victoria*—Pure white.
- No. 3 *Rubra*—Crimson.
- No. 4 *Triomphe du Nord*—Apple blossom pink.
- No. 5 *Festiva*—White with red center.
- No. 6 *Delachi*—Dark crimson.



A Beautiful Border Planting of Peonies.



Hyacinth Planting.

Bulbs for Fall Planting

To the lover of flowers there is no class of plants so much prized as those which are produced from bulbs. The reason is easily found, because within the bulbs is stored all the future glory of leaves and flowers, only requiring the simplest culture to develop them in their highest perfection. A large number of them produce their flowers in very early spring, when the rest of nature is asleep. With no other material can be secured such a wealth of charming flowers of infinite variety of form and coloring, with so little trouble and at so small an outlay.

Tulips, Hyacinths, Narcissus, Crocus, Jonquils and other spring-blooming bulbs should be planted in the fall and will bloom gloriously before other flowers the following spring. They can also be planted in pots and window boxes in the house and will be in bloom while ice and snow hold sway out-doors.

These bulbs can not be furnished after the middle of November, and are intended for fall planting only.

We are very careful in buying our bulbs to see that they come only from the most reliable sources.



Crocus.

CROCUS

In various colors, single and double. The crocus is the first flower to bloom in the spring, and it is no unusual sight to see the ground covered with snow and the crocus in bloom at the same time. They are entirely hardy, do not deteriorate, and may be left undisturbed for years. It is a good thing to plant tulip and hyacinth beds full of them, as they bloom and are out of the way before the other bulbs flower. They should be set from one to two inches below the surface of the ground; they can be planted with a narrow trowel or stiff-bladed knife.

HYACINTHS

Among the bulbs used for winter flowers, hyacinths stand foremost on the list. Two methods are employed in flowering the hyacinth in winter, one in glasses filled with water, the other in pots or boxes of soil. Hyacinths potted in September may be brought to bloom by Christmas, and by successive plantings a succession of bloom may be had until Easter. Plant the bulb in the pot so that its crown just shows, then set away in a cool, dark place for six weeks or two months for root growth to develop. After this, bring gradually to the light, heat and air and give plenty of water.

JONQUILS

Pretty varieties of the *Narcissus*, have a very agreeable fragrance; adapted to either pots or out-door culture. The bulbs being small, six or eight may be put in a six-inch pot. They are grown with great ease, and by planting early a succession of bloom may be had throughout the winter.



Narcissus.

NARCISSUS

The double and single varieties of *Narcissus* are entirely hardy and need not be disturbed oftener than once in three or four years, and unless they have become much crowded. Plant in the fall in good garden soil, three or four inches deep, three to five inches apart. For indoor growing, *Narcissi* require the same treatment as Hyacinths.

TULIPS

Tulips are favorites with everybody. They are entirely hardy and of very easy culture, blooming with grace and beauty in either a city lot or a more favored location. They are equally as desirable for bedding out and for pot culture indoors. The culture of tulips is similar to that for hyacinths, except that the bulbs should be planted about four inches deep and four inches apart. For indoor culture plant the bulbs three inches deep.

An easy way to plant tulip bulbs for outdoor culture is first to shovel out the soil of the bed to a depth of four inches, raking the bottom off level. Then set the bulbs firmly on this level surface, pushing each down just enough to hold it erect. Then put the soil back in place, being a little careful at first not to disarrange the bulbs. Now smooth off the top and your tulip bed is safely planted. This method is easier and insures a more uniform depth of planting.



Tulip.



Dahlia Planting.

Bulbs for Spring Planting

DAHLIAS

Well known autumn-flowering plants, growing from two to five feet high, and producing a profusion of flowers of the most perfect and beautiful form, varying in color from the purest white to the darkest maroon. The Dahlia is not as particular as most of our flowers, and will succeed under a great many adverse conditions. An open, sunny location seems to favor them at all times. Dahlias will grow and do equally well in any kind of soil, as far as the number of flowers is concerned, the only difference being that in sand and gravel they form a short, sturdy, compact plant, and in heavy loam and lowland they grow tall and rank, blossoming about a week later than those planted at the same time in sandy soil.

GLADIOLI

Gladioli are universally admired for their magnificent flowers, which are of the richest colors. To obtain a succession of bloom, they should be planted every two weeks, from the first of April to the beginning of June. They will then produce a succession of bloom from July until November. Plant in good, dry, sandy loam. Dig the row or bed from eight to ten inches deep, then spread a liberal amount of good fertilizer in the bottom of the row or bed, then rake it in thoroughly before planting your bulbs; but if stable dressing is used it should be spaded in when the bed is first dug over. Hen dressing can be used, giving first-class results, if applied properly; but it must be put in the bottom of the drill or bed, then covered with fully an inch of soil be-



Lilium Auratum.

fore the bulbs are planted. The bulbs after being planted should then be covered from four to six inches deep; just as soon as they show their heads through the ground, they should be cultivated. If this is continued once a week, till they commence to flower, one will be sure of first-class results.

In autumn, when the leaves turn yellow, the bulb is sufficiently ripe to take up. After taking up, they should be sun-dried for a day or two, then put in a dry cellar and kept from the frost.

LILIES

The Lily has always been deservedly a favorite. They are most graceful in lines, brilliant in delicacy of color, and of delightful fragrance. The genus embraces a vast number of species; we, however, confine our list to such as are of easy culture, and give the best results with the least care. It is in the hardy border, or among shrubbery, that lilies do best, as they get the benefit of the shade of the surrounding plants which is so necessary for their welfare. In planting, cover the bulbs at least three times their own depth, and when hard frost sets in, four to six inches of leaves or litter should be placed over them; this should be removed in the spring, when danger from hard frost is past. When grown in pots it is advisable to begin with the smallest pot in which the bulbs can be placed, and to shift into larger pots as the plant progresses. A cool temperature suits them best, and the plants should be liberally watered during the period of growth and flowering. They succeed best in a dry, rich soil, where water will not stand in winter. After



Gladiolus.



Lily of the Valley.

planting they require very little care, and if not disturbed for several years they will bloom more freely than if taken up annually.

Album—Very fragrant large flowers, pure white with a green band running through the center of each petal. One of the best.

Auratum (The Gold-banded Lily of Japan)—The flowers are white, dotted crimson, with a broad gold band running through the center of each petal.

Rubrum—White; beautifully spotted red; flowers in August. This is one of the most useful of the Lily family, perfectly hardy, and flowering well under all circumstances.

Tigrinum (Double Tiger Lily)—Bright orange scarlet with dark spots.

Lily of the Valley—This Lily is as hardy as any plant can possibly be, and when planted in open ground increases rapidly.

TUBEROSE

One of the most beautiful summer-flowering plants, producing spikes from two to three feet high of double, pure waxy-white flowers, delightfully fragrant. May be kept in bloom for a long time by planting from the first of April to the first of June. Very desirable for bouquets or baskets.



Thunberg's Barberry Hedge.

Hedge Plants

Twenty or thirty years ago the only hedges to be seen were the osage orange, honey locust, and occasionally an American arborvitae. These hedges were usually planted as dividing lines between property, and occasionally around the garden or lawn. At the present time more attention is given to variety of form and foliage, and many pretty effects are to be seen in towns and villages. The ornamental hedge seems to have supplanted the iron and picket fences. It gives a more harmonious effect to property in general. Among the finest shrubs for deciduous hedges are the California and common privet. Each year we find that the use of the different varieties of privet is growing. In many towns and cities the privet is used more than all other varieties of plants and evergreens put together. Privet can be pruned at any time, and the more this is done the better it will look and thicker it will grow. Insects never attack it, and it does not grow dull, but holds its beautiful green foliage throughout the season. Remarkable for the beauty of its evergreen foliage and strong, regular, symmetrical growth. The foliage is dark green, very glossy and wax-like; hardy everywhere.

To secure a compact hedge and one of even growth, it is necessary when the plants are first set out to prune back severely. This encourages strong root growth.

BARBERRY

Barberry, Green-leaved—A sturdy shrub, with upright or arching branches bearing a wealth of bristly dark green leaves. Handsome in spring with its profuse clusters of golden-yellow flowers, and in fall with its bright scarlet berries, which remain throughout the winter.

Barberry, Purple-leaved—An interesting, attractive and beautiful variety with violet-purple leaves and fruit; perfectly hardy; very desirable.

Barberry, Thunberg's—A graceful, dense shrub of dwarf habit. Branches spreading; foliage small. One of the most valuable species and one of the most beautiful shrubs in cultivation, especially remarkable for its large, brilliant red berries, remaining fresh until spring, and for its dazzling fall coloring. Desirable for hedges and borders of walks and drives. Endures partial shade.



Buckthorn Hedge.



California Privet.

where it does not winter-kill. The foliage is large and glossy, and is almost evergreen. While we can furnish the California Privet for hedging purposes, we do not recommend it as being absolutely hardy north of the southern line of Iowa.

RUSSIAN OLIVE

A very hardy and handsome species that in some sections forms a small tree, 8 to 12 feet high. Leaves are particularly handsome, willow-like and rich silvery white. Flowers are small, golden-yellow and very fragrant, followed by yellow fruits, which are covered with silvery scales. Blooms in June.

Amoor
River
North
Privet.

BUCKTHORN

Hardy, vigorous shrubs with handsome foliage and showy berries. The larger-growing species are well adapted for hedges, both the trimmed and untrimmed. Thrive in moist, loamy soils; endure partial shade.

JAPAN QUINCE

Unquestionably a fine plant for an ornamental hedge. Grows very compact; will submit to any amount of pruning, while the brilliant and showy scarlet flowers make it exceedingly attractive.

OSAGE ORANGE

One of the very best for use as a stock-tight fence where it can be grown without winter killing. It is of vigorous habit and rapid, dense growth, and makes a close, firm, almost impenetrable barrier that will turn any farm stock. When kept properly trimmed it not only makes an effective hedge, but it is decidedly ornamental.

PRIVET

Amoor River North or Russian Privet—This is the most beautiful hedge plant grown. It has a luxuriant, glossy leafage and thick clusters of fragrant white flowers. Hardy, free-flowering, of dense, neat habit; attractive all the year, in berry, leaf or flower. Makes a beautiful specimen plant, a fine screen, group or hedge.

California Privet—One of the finest for hedges

where it does not winter-kill. The foliage is large and glossy, and is almost evergreen. While we can furnish the California Privet for hedging purposes, we do not recommend it as being absolutely hardy north of the southern line of Iowa.

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Tulip Tree (See page 53)

Upright Ornamental Trees

While most people appreciate well arranged and well kept grounds, large or small, many fail to realize that they too can have equally attractive premises. Aside from the pleasure of having fine trees in the grounds surrounding a home, few realize how much these add to the commercial value of the place. A purchaser having to decide between a house with bare and unkept grounds and one surrounded by fine ornamentals, invariably chooses the latter at a marked advance in price, because he sees that he will at once enjoy what it would otherwise take some years to secure. Sagacious men are led by a knowledge of these facts to plant fine trees about vacant lots they are intending to put upon the market. Lots thus planted readily secure purchasers at good prices when bare, unattractive grounds go begging for buyers.

Do not make the mistake of planting at random all over the grounds. A fine, well cut lawn is one of the handsomest features of a place. Trees may be planted along a lane or avenue leading to the house, or dotted about the lawn on lines radiating from the house. This will secure light and air with good views from the house. It will not do to plant so little that years must elapse before a fine effect will be produced. A surplus of trees and shrubs should be planted at first, and gradually taken out as they increase in size.

The stock of ornamental trees that we offer will be found to comprise a sufficient number of kinds that are really valuable, so that our customers may, from the list offered, secure such a variety as will give full satisfaction. Windbreaks of trees, more especially if they are evergreens, besides being ornamental, make the dwellings warmer, diminishing to an extent the consumption of fuel. They also make the outbuildings warmer for stock by night and the yard by day, imparting comfort to the animals and saving a large amount of food.



Carolina Poplar.

A List of Trees Recommended for Various Purposes

For Streets, Roads and Wide Avenues—
American White Elm, Sugar and Soft Maple,
Carolina Poplar.

For Driveways Through Lawns and Parks—
Norway Maple, Tulip Tree, Catalpa Speciosa,
American Linden.

**Single Specimens of Large Growth to be
Branched from the Ground—**Birches, particu-
larly Cut-leaf Weeping; Austrian and Scotch
Pines, Norway and Colorado Spruces, Balsam
Fir.

**Single Specimens of Medium Growth to be
Branched from the Ground—***Prunus Pissardii*,
Hemlock, White Pine, *Arborvitae*.

Strong Growing Trees of Pyramidal Habit—
Carolina Poplar, Balsam Fir, *Pyramidalis Ar-
borvitae*.

Trees that Thrive in Moist Locations—Amer-
ican White Elm, American Linden, Ash, Catal-
pas, Poplars and Willows.

**Trees that Thrive on Dry Knolls or Poor
Soils—**Silver-leaf Maples and Poplars.

Best Trees for Windbreaks—Norway and
White Spruces, Scotch and White Pine, Caro-
lina Poplars and Silver-leaf Maples.

Flowering Trees—Judas Tree, Purple Fringe,
American and European Lindens, Horse Chest-
nut, Catalpas, Flowering Crab.

Cut-leaved Trees—Cut-leaf Weeping Birch,
Cut-leaf Maple.



Horse Chestnut.



Catalpa Speciosa.

ASH, White

Rapid-growing tree, of fine, symmetrical
outline. Upright or spreading branches, forming
a pyramidal or round-topped crown. Leaves
compound, with five ovate leaflets, dark green
and lustrous above, whitened beneath, fading
in autumn with tones of purple and yellow. A
beautiful and desirable tree for street or park,
and should be extensively planted. They thrive
in almost any moist, fertile soil.

BLACK LOCUST

A native tree of large size, rapid growth and
valuable for timber as well as ornamental; the
flowers are white or yellowish, very fragrant,
and appear in June.

BLACK WALNUT

This species is a common and stately forest
tree in the Middle and Western States; grows
from forty to sixty feet high; has an open,
spreading head and is rapid in growth; pro-
duces large crops of nuts with rough, hard
shell containing rich, oily kernels of fine flavor.
It is hardy, and succeeds best on a rich, deep,
moist soil. Odd corners on the farm may be
utilized to advantage by planting nut trees,
which are a source of both pleasure and profit
to the owner.

BOX ELDER

A fine, rapid-growing tree, with handsome,
light green pinnated foliage and spreading head.
Twigs pale green and shining, sometimes purple
with a glaucous bloom. Leaves compound,
with three to five leaflets, bright green, paler
beneath, turning yellow in autumn. Frequently
planted as an ornamental and in the middle west
for wind-breaks and timber, where it withstands
cold and drought. Very hardy.



American White Elm.

CAROLINA POPLAR

Takes front rank among best of poplars; it is one of the most rapid growers among shade trees. Its branches spread just enough to give it a symmetrical appearance. It has advantages over other shade trees because it will grow on any kind of soil, swampy or muck, light or heavy. Its roots penetrate the hardest soil, it withstands all hardships and thrives in places where others fail to live. It is easily started and gives shade in a short time after planting. Its leaves are large and stay green till quite late in the fall.

CATALPA SPECIOSA

The most valuable tree known when planted for commercial purposes. A thick, rough-barked tree of soft, white wood. The wood is largely used for fence posts, railroad ties and telegraph poles. The value of the plantations of this wood in Kansas is estimated by the United States Department of Forestry to be from \$300 to \$400 per acre. Its great virtue is its lasting quality. Railroad ties have been taken up after fifteen years of hard service and found to be still in good condition. Fence posts have been known to last for forty to fifty years. The wood rarely shows any signs of decay during the first forty years in the ground. Another valuable feature of the wood recently discovered is its ability to take a high polish. It is now being used as imitation oak and mahogany, and this is daily creating a bigger demand for this tree. Its culture is extremely simple, and requires little time. Cultivate the tree for the first three years the same as corn. Cut the first year's growth back to the ground for the next two years, prune carefully in order to get one straight stem or leader.

Thereafter the grove requires but little attention. Groves should be planted in rows 5x8 feet, and when five years old, every other tree may be cut out and used for fence posts. When ten years old the remaining trees are valuable for telephone poles and cross ties. Your final profits at the end of the ten year period will average from thirty to forty dollars per acre each year.

CHESTNUT

American or Sweet Chestnut—Well known beautiful tree, valuable for fruit and timber. Should be planted only on thin, dry soils for best results.

Horse Chestnut—Common or white, flowering. A very beautiful, well known tree, with round, dense head, dark green foliage, and an abundance of showy flowers which appear in early spring.

ELM, American White

The noble, spreading, drooping tree of our woods. One of the grandest park or shade trees. A magnificent, stately tree, easily distinguished by its wide, weeping top and pendulous branchlets. One of the most noble and graceful trees where a tall, spreading tree is desired.

HACKBERRY

A native tree that deserves more general planting. Leaves are light green, glossy, pointed. Not subject to insect pests. Branches are slender and grow horizontally, forming a wide-shaped head. Thrives in all soils.

HONEY LOCUST

A rapid-growing native tree with powerful spines and delicate foliage; the greenish flowers appearing in early summer are followed by flat pods eight to ten inches long; used extensively for hedges.



American Linden.

LINDEN

American Linden—A rapid-growing, large, beautiful native tree. Flowers very fragrant.

European Linden—A very fine pyramidal tree of large size, with large leaves and fragrant flowers; the leaves change in the fall to beautiful tones of yellow and brown.

MAPLE

Cut-leaf Maple—This is a variety of the Silver-leaved Maple, with cut or dissected foliage. Its growth is rapid, shoots slender and drooping, giving it a habit almost as graceful as a cut-leaved birch. A very desirable tree.

Norway Maple—Of spreading, rounded form; foliage large, dark green; a rich and majestic shade tree.

Schwedleri Maple—One of the most beautiful trees we know. Foliage in spring is brilliant purple later changing to a rich dark green. Leaves on the new growth during the summer are bright purple, making the tree always beautiful. Similar in habit of growth to the Norway.

Soft or Silver Leaf Maple—A rapid-growing tree of large size, irregular, rounded form; foliage bright green above and silver beneath; a favorite street and park tree; about the same height or taller than Norway.

Sugar or Hard Maple—One of the most desirable of all ornamental trees, being very stately in growth, of fine form and beautiful foliage. A slow grower. Especially valuable for avenue planting.

MOUNTAIN ASH

Very hardy and handsome, with fine clusters of scarlet berries hanging on the trees in winter; a beautiful tree for the lawn.

RUSSIAN OLIVE

A very hardy and quite a rapid growing tree with a silvery foliage; very striking in appearance. Its ability to endure extreme cold and drouth makes it desirable for ornamental lawns



Norway Maple.

and for hedges. The wood is of little value and is not inclined to grow into tree form unless forced to; it will never become popular to be grown in large quantities.

SYCAMORE

Rapid-growing, hardy trees of great adaptability, but thriving best in moist loam. A beautiful tree with picturesque white or gray bark.

TULIP TREE

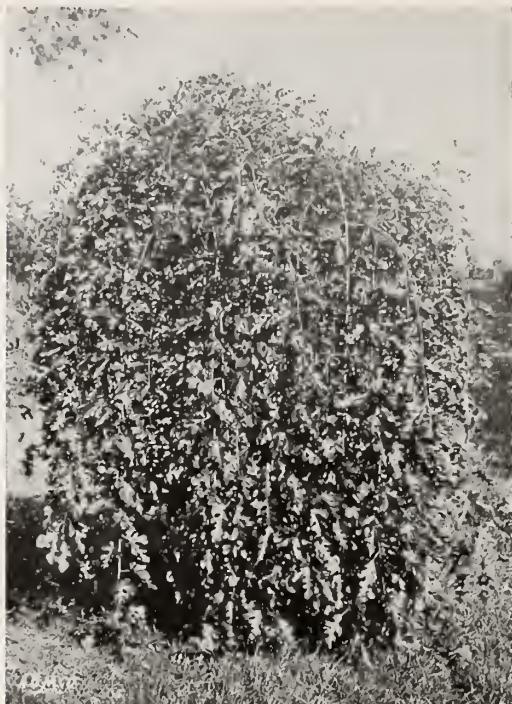
A magnificent rapid-growing tree of pyramidal form, attaining a height of 150 feet, with light green, glossy, fiddle-shaped leaves and greenish-yellow tulip-shaped flowers; also known as whitewood. Succeeds best in southern latitudes.



Soft Maple.



Cut-leaf Maple.



Teas' Weeping Mulberry.



Catalpa Bungei.

Weeping and Headed Ornamental Trees

Much attention is now given to this class of trees, and we place them separately for the convenience of our patrons. The superior grace and beauty of the weeping varieties render them especially adapted to yard, lawn or cemetery planting. No collection is complete without them.

CATALPA BUNGEI

A curious dwarf form that grows only three or four feet high and twice as broad, forming a pretty dome-shaped head of great, soft, leathery leaves. The leaves are laid with shingle-like precision. Hardy; strong-growing; unique. It is very desirable when grafted on stems five to eight feet high for border along drive.

CAMPERDOWN WEEPING ELM

This beautiful tree is of fine and notable habit, the strong, stout branches often sweeping out horizontally for several feet before they curve downward, making a broad, handsome head. Trees when delivered are from five to eight feet tall, and trunk grows practically no taller. The head can be grown in time to attain the size of ten to twenty feet across it. Leaves are of a dark, glossy green, of large size, completely covering the tree, forming a luxuriant mass of verdure. Very desirable as an ornamental.

BABYLONIAN WEEPING WILLOW

The well known, common weeping willow; makes a large tree, covered with drooping branches. Easy to transplant. Valuable for water scenery and for low grounds.



Babylonian Weeping Willow.



CUT-LEAF WEEPING BIRCH

Erect, stately, rapid-growing tree, with long, slender, pendant branches, delicately cut leaves and silvery-white trunk; especially fine when near evergreens; hardy. Beyond question this is the most popular of the weeping or pendulous trees. Its tall, slender, yet vigorous growth, with its graceful, drooping branches and silvery-white bark, presents a combination of attractive characteristics rarely met with in a single tree. See illustration in colors.

KILMARNOCK WILLOW

A rapid-growing, hardy tree, thriving in almost any soil. The Kilmarnock Weeping Willow is everywhere associated with waterside planting and is without doubt one of the most remarkable of trees. Wonderful effects may be obtained by grouping or massing, especially when they are contrasted against evergreens or other strong backgrounds.

EUROPEAN MOUNTAIN ASH

A strong grower; remarkably pendulous; perfectly hardy; succeeds admirably on prairie soil. This variety has large and slender drooping branches, grafted on straight, upright stems. Bright red berries are borne in profusion.

TEA'S WEEPING MULBERRY

One of the finest and most graceful weeping trees, forming an umbrella-shaped head, with slender, willowy branches which droop to the ground. The foliage is beautiful, leaves distinctly lobed. Tree is perfectly hardy,



Cut Leaved Weeping Birch

Evergreens

Evergreens are very desirable, but they are difficult to transplant, and both the time and manner of transplanting should be looked to. They should never be set in the fall after the growth of other trees has ceased.

Evergreens are used for specimens on lawns, also extensively for massing, shelter-belts, screens, hedges, etc. They form perfect backgrounds for the flowering shrubs of early spring, for the berries of autumn and winter's tracery of bright bark and twigs. Beautiful beds of permanent color are formed by grouping together sorts of moderate growth, with contrasting foliage.

Our evergreens are all carefully grown, at good distances for symmetrical development, are root-pruned, shapely specimens that will transplant successfully to new homes with ordinary care. We pack them so that the root-fibers are well protected and will reach their destination in good growing condition. If planters will continue this care to keep the fibers from drying out by exposure to air and sun until the stock is planted, success is reasonably sure.

In handling and planting evergreens, never allow the roots to become dry for an instant. Their juices are resinous, and when once dry, water has no power to restore them; dip the roots in "grout" or very thin mud, and plant quickly; cover the roots with fresh soil and with a heavy piece of wood beat the earth



American Arborvitae.

solid over them. Fill up and pound again, and finish by bringing fresh loose earth about the tree with a hoe. No wind can now bend the trees about so as to break the tender rootlets as fast as formed. If trees are planted when soil is very wet, the pounding must be omitted until in working order to prevent baking; planted in this way and thoroughly cultivated with plow and hoe every week, evergreens seldom fail to give abundant satisfaction. A heavy mulch July 1st and they are all right for the season. For windbreaks a single row of pines or spruces, eight feet apart, or a double row ten feet each, the two rows breaking joints, will, in a few years, become a beautiful living wall.

Use Scotch Pine, White Spruce, Norway Spruce, and White Pine for high screens and Arborvitae or Red Cedar for low ones.

ARBORVITAE

American Arborvitae—This plant is, all things considered, the finest evergreen for hedges. It is very hardy and easily transplanted, few plants failing if properly handled. It grows rapidly and with little care, or rather by easy management; it soon forms a most beautiful hedge, very dense and perfectly impervious to the sight. It is never planted to turn stock, but it forms a most desirable and ornamental screen to divide the lawn from other grounds.

Pyramidalis Arborvitae—A superb new and hardy sort, of very compact habit; much better than the Irish Juniper, and grows in a perfect column. Largely planted in cemeteries, owing to the small amount of space it occupies. This is perhaps the most valuable Arborvitae in cultivation. One of the most beautiful varieties of Arborvitae; foliage a deep green color, well retained in winter.



White Pine.



Colorado Blue Spruce.

BALSAM FIR

A handsome, compact, erect, pointed tree, with short, soft leaves which are dark green above, silvery beneath; a good grower. This tree possesses qualities of extreme hardiness and rapid growth; of wide distribution. Occurs naturally from Labrador and the Virginia mountains to Minnesota and the Northwest Territory. The foliage is very fragrant in drying, dark green above, silvery beneath. Cones violet or purple, two to four inches long.

HEMLOCK

An elegant pyramidal tree, with drooping branches and delicate dark foliage, like that of the Yew; distinct from all other trees. It is a beautiful lawn tree and makes a highly ornamental hedge.

IRISH JUNIPER

Very erect and tapering in its growth, forming a column of deep green foliage; a pretty little tree or shrub, and a general favorite for its beauty and hardihood.

PINE

Austrian (Black)—A remarkably robust, hardy, spreading tree; leaves long, stiff, dark green; growth rapid; valuable for this country.

Jack Pine—Most northern of all American Pines; valued for its extreme hardiness and vigor; withstands long drouth and hot, dry winds.

Scotch Pine—One of the most rapid growers while young, one of the best for shelter planting in the West. It will make the best windbreak in the least time of any; it is a very valuable species.

White Pine—One of the best evergreens. The foliage is a warm, light green, often with a bluish tinge. The leaves, in fives, are three or four inches long, soft and delicately fragrant. It does not grow as rapidly the first few years as some, but after being planted eight or ten years it is the most rapid grower of all our evergreens.

RED CEDAR

A well-known tree, with fine deep green foliage; variable in its growth; suitable for ornamental hedges.

SPRUCE

Black Hills Spruce—A beautiful tree with drooping branches and fine yew-like foliage; perfectly hardy.

Colorado Blue (Green)—One of the most beautiful and hardy of all the spruces. Foliage a rich light bluish-green.

Colorado Blue Spruce (Shiner)—The highest colored and most striking of the evergreens for lawn planting; foliage is a rich and beautiful silvery-gray; very hardy.

Norway Spruce—A lofty, elegant tree of perfect pyramidal habit, exceedingly picturesque and beautiful. One of the best evergreens for windbreaks.

White Spruce—A tall tree with compact branches and light green foliage. Very handsome.



Norway Spruce.

SPRAYING

Each year the absolute necessity of proper spraying is made more manifest. There is no demand for deformed, small, wormy fruit, while clean, well-grown fruit always commands a good price. Such fruit cannot be grown without spraying. Spraying is not difficult. It needs no expert. It is far cheaper than growing wormy fruit, and should be of as much interest to the man with six trees as to the orchardist with 6000 trees.

We are unable in this short space to give our readers a complete and detailed instruction on spraying, and the following, although accurate, is still very brief and incomplete. If more detailed information is desired, we suggest to our readers that they write to their State Entomologist, who will furnish, without cost, a complete bulletin on spraying. The several states in the middle west are now devoting considerable attention to horticulture and are prepared to furnish this information free of charge.

Spray Pumps and Spray Materials

We do not handle spray materials, nor do we carry a complete line of spray pumps. We are in a position to furnish direct from our plant a small, inexpensive, but efficient hand-power pump. If a more complete outfit is desired, we will gladly send, upon request, the names and addresses of manufacturers who carry a complete line of spray equipment. Most of the materials for spraying can be had from the local druggist.

Applying Spray Materials

Do not spray the blossoms. Much damage may be done by spraying when the trees are in bloom. Such treatment prevents many of the blossoms from setting fruit. It also poisons many insects which are valuable because they assist in cross-pollination of the blossoms, which in turn insures a much better setting of the fruit.

In spraying to prevent fungous diseases such as apple scab, the best results will be obtained when the leaf is covered most completely and permanently with the spray mixture. The same is true of spraying with insect poisons. This may be best accomplished by making a spray so fine that it will fall on the leaf in mist-like particles and dry there. The aim should be to cover every leaf in this way and at the same time, so far as possible avoid making the leaves drip.

In spraying with lime-sulphur it is especially necessary to avoid drenching the foliage. The foliage can be covered in a better way with a mist-like spray than with a coarse spray, and at less expense of time and material.

The stronger the pressure the finer the spray. From 100 to 200 pounds pressure will make a finer spray than 70 pounds pressure will make when the same nozzle is used. When a fiercely driving spray is needed, as for example, in forcing the mixture into every crevice of the bark

when spraying for San Jose scale or in filling the lower calyx cup of the apple when spraying for coddling moth, it is well to have a pressure of 200 pounds.

Care should be taken that the liquid is kept well mixed. If this is not done, the heavy ingredients of the mixture settle, and then at times the mixture will be too strong and at other times too weak.

Time to Spray

One should follow the general plan as listed below in spraying each kind of fruit. In so doing the various insects or fungous diseases attacking that particular fruit will be controlled. It is folly to wait until the damage can be seen before spraying, for the idea of spraying is to prevent the damage, as well as to correct it.

Apple

First Spray. This spray should be put on just after the cluster buds expand and the blossoms open. Bordeaux Mixture (Formula G) or lime-sulphur (Formula C). This is the most important single treatment for apple scab. At this time a spray of lead arsenate 3 lbs. to 50 gallons of water should be applied for the curculio, bud moth, case bearer, canker worm, tent caterpillars and other leaf-eating insects. These two sprays can well be combined by putting 3 lbs. of lead arsenate in each 50 gallons of the Bordeaux or lime-sulphur.

Second Spray. This spray should be put on just as the blossoms are falling. Lime-sulphur (Formula C) should be applied at this time for apple scab and other diseases. Two pounds of lead arsenate to each 50 gallons should also be added for the coddling moth, curculio or any leaf eating insect.

Third Spray. This follows the second spray in ten to twenty days, in ten days if cloudy, wet weather has prevailed. Where bitter rot and blotch are troublesome, use Bordeaux mixture

(Formula A), otherwise lime-sulphur and lead arsenate as in second spray.

Fourth Spray. This spray should be put on about nine weeks after the third spray, and should consist of Bordeaux mixture (Formula A). It is for the apple blotch, bitter rot and late attack of the scab. Lead arsenate, 2 lbs. to 50 gallons of water should be included for the second brood of codding moth and other leaf destroying insects. This spray should be repeated in ten to twenty days if necessary.

Peaches

First Spray. This should be applied shortly after blooming when the fruit is bursting the shucks. Arsenate of lead should be used, about 2 lbs. to 50 gallons of water, mixed with milk of lime, made from two or three pounds of fresh lump lime. This is the most important spray for curculio.

Second Spray. This should be applied about two to four weeks after the first spray and is effective against brown rot and scab. This spray should consist of self-boiled lime-sulphur (Formula B), with which should be mixed two pounds of arsenate of lead to each 50 gallons of spray material.

Third Spray. This should be applied about a month before the fruit ripens, and should consist of self-boiled lime-sulphur (Formula B), for brown rot and scab. No arsenate of lead should be used at this time.

Plum

First Spray. Apply just after the blossoms fall. This spray is very important for brown rot, leaf spot, and curculio, and should consist of lime sulphur (Formula C), with which should be mixed 3 lbs. arsenate of lead to each 50 gallons of spray material.

Second Spray. Repeat first spray in about fifteen days.

Third Spray. Repeat in two or three weeks if necessary.

Fourth Spray. This is applied for lice, and should be put on just when the first lice appear and before the leaves curl. Nicotine sulphate (Formula D), shuld be used.

Cherry

First Spray. Should be applied just after the blossoms fall. Use lime-sulphur (Formula C), with 2 lbs. arsenate of lead to each 50 gallons spray material. This will be effective against fruit rot, leaf spot, slug, and curculio, and is very important.

Second Spray. Should be applied in about ten or fifteen days after the first spray. Use lime-sulphur (Formula C) without any arsenate of lead.

Third Spray. Just after fruit is picked. Bordeaux mixture (Formula G) with 2 lbs. of lead arsenate should be used for leaf spot, slugs and other insects. This should be repeated whenever necessary.

Fourth Spray. This spray is for lice, and should be applied when the first lice appear and before the leaves curl. Use Nicotine sulphate (Formula D).

Pears

Follow the same general line of spray for insects and diseases as that indicated for apples.

Grapes

First Spray. Apply when the first leaves are one-third grown. Use bordeaux mixture (Formula G), for mildew and brown rot.

Second Spray. Just before the blossoms open. Repeat first spray. Three pounds of arsenate of lead may be added, if needed, to each 50 gallons of spray material for curculio and other biting insects.

Third Spray. Spray just after the fruit sets, repeat second spray. Important.

Fourth Spray. Ten to twenty days after third spray. Repeat second spray.

Lime-sulphur must not be used on grapes.

Currents and Gooseberries

First Spray. When the leaves first appear and at intervals of about two weeks until fruit is half grown. Apply lime-sulphur (Formula C) or bordeaux (Formula G), either of which will be effective for mildew.

Second Spray. When "worms" first appear. Use bordeaux (Formula G) for leaf spot, with 2 lbs. arsenate of lead for the worms.

Third Spray. When the fruit is nearly half grown. Repeat second spray if needed. If worms appear after this, use hellebore (Formula E). If troubled before this date with leaf spot, spray with bordeaux (Formula G).

Fourth Spray. When lice first appear and before the leaves curl, use nicotine sulphate (Formula D).

Dormant Spray

All orchards in districts that are within very many miles of the San Jose scale, oyster shell bark louse, scurfy bark louse or any other scale insects, should be thoroughly sprayed each year as a preventative as well as a curative. This dormant spray is a general cleaning up spray and very beneficial.

This spray should be put on either as soon as the leaves are off in the fall or late in the winter before the buds begin to swell in the spring. Commercial lime-sulphur used at the strength of about one gallon to nine gallons of water if applied properly and carefully, will control and finally eradicate these pests.

Spraying Formulas

Bordeaux (Formula A)

To make 50 gallons: Take four lbs. of copper Sulphate (Blue Vitrol) and dissolve in 6 gallons of water. Don't use an iron or tin vessel because it will corrode the metal. Take 4 lbs. of quick lime, not slacked; slack the lime in 6 gallons of water. After the latter solution is cooled, slowly turn it into the other solution and add the remaining 38 gallons of water to make 50 gallons. The Bordeaux mixture is now made. Strain it into the spray tank through a wire cloth strainer, so as to catch any lint or coarse particles which might clog the nozzle. If lead arsenate is to be combined with the bordeaux it should be added at this time

Self-Boiled Lime Sulphur (Formula B)

Care should be taken that this is not confused with the commercial lime-sulphur. In the use of the self-boiled lime-sulphur the 8-8-50 formula is recommended. This means 8 lbs. of sulphur, 8 lbs. of pure pump lime and 50 gallons of water. The lime should be placed in a barrel and enough water poured on it to almost cover it. As soon as the lime begins to slack the sulphur should be added, after first running it through the sieve to break up the lumps. The mixture should be constantly stirred and more water added so as to form a thick paste at first, and then gradually a thin paste. The lime supply will heat enough to boil the mixture several minutes. As soon as it is well slacked and mixed, water should be added to cool the mixture and prevent further boiling. It is then ready to be strained, and the remainder of the 50 gallons of water added. Some limes become intensely hot on slackening, and therefore care must be taken not to allow the boiling to proceed too far; otherwise, the sulphur will go into the solution, combining with the lime to form Sulphides, which are injurious to Peach foliage. It is very important, especially with hot lime, to cool the mixture quickly by adding a few buckets of water as soon as the lumps of lime have slacked down. The mixture is now ready to be applied. If lead arsenate is to be used in connection, it should be added at this time.

Lime Sulphur Solution (Formula C)

Care should be taken that this is not confused with the self-boiled lime-sulphur. Lime

sulphur concentrate can be purchased through most any drug company or paint company, and should be diluted according to the density of the concentrate solution. A solution that tests 27 degrees Baume should be diluted one gallon to about 30 gallons of water. That which tests 33 degrees should be diluted one gallon to 40 gallons of water. That which tests 36 degrees should be diluted one gallon to 45 gallons of water. This will give about $3\frac{1}{3}$ lbs. of sulphur to each 50 gallons of spray.

Nicotine Sulphate or Black Leaf 40 (Formula D)

Use at the rate of three-fourths of a pint nicotine and 3 lbs. sulphate of soap to 100 gallons of water for spray on plant lice and other soft-bodied sucking insects. This may be used with lime-sulphur or the bordeaux mixture, omitting the soap.

Hellebore (Formula E)

Hellebore is a powder which kills both by contact with the insect and as a poison. It may be used either dry or with water. It may be mixed with three or four parts by weight of flour and dusted on the insects, or it may be mixed with water at the rate of 1 lb. to 25 gallons and used as a spray.

Kerosene Emulsion (Formula F)

Kerosene 2 gallons, rain water 1 gallon, soap one-half pound. Dissolve the soap in water by boiling, take from the fire while hot and turn in kerosene, churning briskly for five minutes. It can be churned easier by pumping. Dilute before using according to direction.

Bordeaux (Formula G)

This is the Regular Bordeaux Mixture (Formula A), but diluted so as to contain 3 lbs. of copper sulphate to each 50 gallons of water.

Lead Arsenate

This may be purchased in a paste form at any drug store. If the powdered form is used the quantity should be reduced, as the powdered form is nearly twice as strong as the paste form.

Fungus Diseases and Insects

Definite instructions for the control of the following fungus diseases and insects are given in the preceding spraying calendar. In some cases it may be necessary to repeat the spray should the recommended application not prove sufficient.

Fungus Diseases

1—Bitter Rot. It begins with small, sunken, decaying, bitter spots on the fruit, which may extend and rot the whole apple. The bitter rot fungus lives over winter in the cankers on the twigs and limbs, from which it spreads to the fruit during the growing season.

2—Brown Rot. This is the soft or ripe rot. This fungus is everywhere present. The least break in the skin gives it easy entrance into the fruit. Loss of fruit in storage from this disease follows when the skin is cut by finger nails, punctured by fruit stems or broken in any way. Rainy weather late in the season after prolonged drouth may cause growth

cracks in the fruit through which fungus may get entrance to the flesh. To avoid these growth cracks, maintain uniform rate of growth by early and frequent cultivation to preserve the soil moisture and keep the skin of the fruit in active, growing condition.

3—Blotch. This disease is caused by fungus which forms cankers on the twigs and fruit spurs, and even on the larger limbs and body of the tree. It also forms small yellowish or brown spots on the leaves, and blotches on the fruit with fringed, irregular margins. It is probably the most destructive apple disease found in the southern borders of the apple belt. If not controlled it may attack the forming fruit buds and cut down the percentage of bloom the following season.

4—Canker (Blister Canker). This is a fungous disease of the bark, causing sunken, discolored patches which later become rough. These enlarge and extend from season to season, and may eventually cause the death of large branches or destroy the tree.

5—Scab. This is generally the most destructive disease of apple. It makes spots varying from the size of small specks to large patches. It may check the growth of the apple so that it becomes one-sided or misshapen, and may cause it to crack. By injuring the skin it opens the way for other fungous diseases to finish the destruction. It causes dark olive brown or nearly black spots on the leaves. By injuring them it prevents the proper development of the crop and also of buds for the next crop.

Insects

6—Borers. Several kinds of borers work in the apple tree. Their presence is usually shown by discoloration of the bark and by their castings. The flat-headed borer and the round-headed borer are the species more common in this state.

A—Flat-Headed Borers. The adult of this insect is a steel colored beetle, flattened above with irregular depressions on the wing covers. It lays its eggs in the bark late in June or July. When these hatch the grubs at once gnaw their way into the sap-wood, where they feed from one to three years before reaching full size, then they go deeper into the solid wood, pupate, and finally emerge as adult beetles. The larva is characterized by a large, broad, flat head.

Examine the trees at least once a year and dig the borers out with a sharp knife or kill them by ramming a flexible wire into the burrows.

To prevent egg laying paint the trunks and bases of the larger limbs about the middle of June with Portland cement mixed to a creamy consistency with skim milk. Work it well into the crotch and all crevices in the bark.

B—Round-Headed Borer. The adult of this insect is somewhat larger than the flat-headed borer, and is marked lengthwise by two broad white lines extending the full length of the body. The larva is more cylindrical in outline than the flat-headed borer and has a round head. Its habit of egg-laying and feeding are similar to those of the flat-headed borer, but the grub requires only about a year to reach its full growth. Treatment is the same as a flat-headed borer.

7—Bud Moth. The larva of this moth is a small brown caterpillar with a black head. It gets to be about half an inch long. These insects live over winter in small cases firmly attached to the bark or twig, at that time being but about one-eighth inch long. Early in the spring they bore into the buds and sometimes eat into the twig. They attack both flower and leaf buds, fastening the parts together with silken threads, forming a nest under the protection of which they live and feed.

8—Canker Worms. Several species of canker worms infest orchards, two of which often appear in sufficient abundance to do serious injury. These are the spring canker worm and the fall canker worm. They may utterly strip the trees of foliage in the spring. They belong to a class commonly called "measuring worms." The larvae of both species begin feeding early in the spring. The two kinds of worms are much alike in appearance. At first they are very small and of light green color, at which stage they may be poisoned most easily. As they grow older they become dark colored but vary in color. They get to be an inch to inch and a half long.

9—Casebearers. The cigar casebearer and the pistol casebearer, so named from the shape of their cases, are insects which may do a considerable amount of injury, but may be controlled by proper spraying. The adults are moths, measuring about one-half inch from tip to tip of the wings. The larvae hibernate in cases attached to twigs. In the spring they feed on the opening buds and new foliage until full grown, living all the time in cases which are readily seen projecting from the surface of the bud or leaf.

10—Coddling Moth. It is this insect which is commonly found in "wormy apples," and it causes a larger financial loss to the apple growers than any other. The moths appear at blossoming time and lay their eggs, which are oval, whitish discs, upon the fruit or even upon the twigs and leaves. The well known "apple worms" hatch from these eggs in about a week and gnaw into the apple, usually through the blossom end. The larvae of the second brood more often enter on the side of the fruit. The "worms" are full grown in twenty or thirty days. They generally leave the apple by coming out of the side, and pupate in silken cocoons under loose bark near the base of the trees or under loose rubbish on the ground underneath.

About nine or ten weeks after blooming the second brood begin to fly. The larvae of the second brood live throughout the winter and come forth as the first brood of moths the next spring.

11—Curculio. Doubtless the plum curculio does more injury to the apple crop in Iowa than any other insect except the coddling moth. It is a snout beetle about one-fourth inch long, and of a dark greenish color. The snout is long and slender and may be folded under the body. The beetle winters under rubbish or in the soil and in early spring begins feeding on the opening leaves. After fruit sets it may gnaw little holes in the fruit, but it does most of its damage by laying its eggs in the fruit,

CURCULIO—Continued.

cutting a crescent-shaped flap at the place where the egg is laid. This insect infests the plum, cherry and peach as well as the apple. Comparatively few of its larvae develop in the apple, but they develop freely in the plum and peach. Since damage to peach, cherry and plum often result from the fruit rot fungus entering through the wounds made by the curculio, any treatment which destroys the curculio tends to lessen the other injury.

12—Plant Lice.—These well known little soft-bodied insects take their food from the juices of the plant by means of a sucking mouth. They pass the winter in egg form. Under favorable conditions after hatching in the spring, they multiply rapidly and may do serious injury. They cause the leaves to curl, stunt the fruit and dwarf new growth of the twigs.

13—Tent Caterpillars. The presence of the tent caterpillars in an orchard is always evident from the unsightly tents which they spin among the branches. The eggs are laid in July in gluey brown rings or masses under the smaller twigs. The caterpillars emerge from the eggs early in the spring and start work at once. The insects from each egg mass form a colony and devour the leaves in the vicinity of the nest.

14—Wooly Aphis. This plant louse is usually detected by the bluish-white, downy or wooly covering which it excretes. Colonies of these insects are often found in cavities or crevices of the bark or the scars of old wounds on the twigs. They are also found about the base of the tree and on the roots. It is chiefly harmful because of its injury to the roots, causing formation of galls and abnormal enlargements.

Further south it becomes a more serious pest than in Iowa.

Spray the trunks and branches of the trees with kerosene emulsion (F), 1 to 5 parts water. Where the lice infest the roots, dig away the soil to a depth of about four inches over a circle about three feet in diameter and soak with about two gallons of the above solution.

15—Oyster Shell Scale. This is at present by far the most important of the scale insects on the apple in Iowa. It resembles the oyster shell and is about one-eighth inch in length. The insects hibernate as minute white eggs under the old scales. The eggs hatch during the latter part of May or early in June, depending upon the season. For a few days after hatching the young may be seen as small whitish lice crawling about on the bark, but they soon fasten to the bark and become covered with the protecting scale.

16—Scurfy Scale. This insect gets its name from the fact that it often encrusts the bark, giving it a peculiar scurfy appearance. It is a whitish, pear-shaped scale, about one-eighth inch in length. It hibernates as purplish eggs under the old scale.

17—San Jose Scale. This is a small, round, yellow louse underneath a round scale about the size of a pinhead, with a black point in the center of the mature scale. It gets its food by sucking the juice from the bark of the tree. There are several broods in the season and they multiply very rapidly. This scale causes small red spots on the fruit, and is generally regarded as the worst scale insect pest. Through the efficient work of the State Entomologist, Iowa has thus far been kept practically free from this insect except in two or three limited districts.



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